

PULP & PAPER

AUGUST 1960

Are Profits Too Low?

page 65

First Bleaching Conference

page 68

New Inclined Pump-Refiner

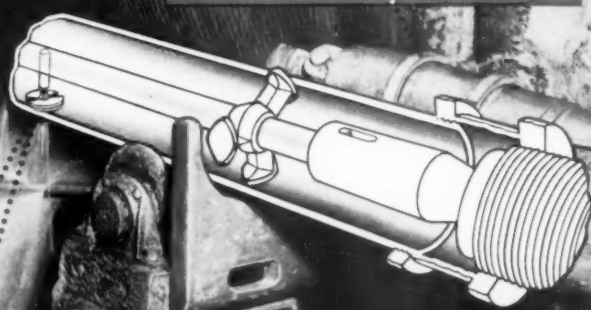
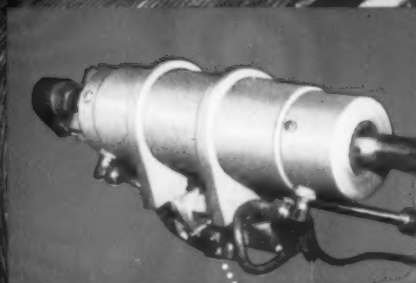
page 89



25% FIBER SUPPLY IN SOUTH IS CHIPS...

Roundup of Southern pulpwood developments takes a look at outside chip storage, quality of purchased chips...other aspects of pulpwood procurement see page 98

now DOUBLE BENEFITS



**...Emerson showers
plus reciprocating
motion**

"With Emerson Reciprocating Showers on the job the downtime saved from having to clean wires frequently has helped increase production nearly 5% on our wide variety of basis weights," says RUSSELL W. HAMILTON, Resident Manager, St. Regis Paper Company, Nashua River Division. "Wire life has been lengthened too, in spite of increasing the machine speed more than 14% on the light basis weights.

"Ridging and spots are eliminated because water pressure is equally distributed across the wire. Even if a nozzle becomes temporarily clogged the horizontal back-and-forth spray coverage makes up for it. Foreign materials have little chance of forming on the wire, which improves sheet formation."

Designed for white water systems, as well as fresh, Emerson Reciprocating Showers hold water costs to a minimum and check the loss of solids. This is due to Emerson's internal clean-out mechanism. Stainless steel brushes, positioned opposite each nozzle, clear the openings of lumps by a simple twist of the handle. As brushes momentarily cover the nozzle openings, a valve opens to permit complete end-to-end flushing of the pipe.

Emerson Reciprocating Showers come in pipe diameters

of from 1½ to 6 inches, in lengths to 376 inches. Each is engineered for its particular application with the proper nozzle size and spray pattern specified.

Pipe travel is provided by an automatic reversing pneumatic cylinder connected to the mill air supply. Speed of travel and length of stroke are easily adjustable. The cylinder may be mounted on either end, at either side of the pipe, which rides on spool-type, sealed bearing rollers. All reciprocating mechanism comes as a complete unit. It is easily, quickly installed with new showers, or with the showers already in operation.

If you want efficient, effective spray coverage and prolonged wire life — if you want to cut downtime and conserve water — if you want to step up production and improve sheet quality — install Emerson Reciprocating Showers. Call or write our sales representative nearest you, or The Emerson Manufacturing Co., Division of John W. Bolton & Sons, Inc., Lawrence, Massachusetts.



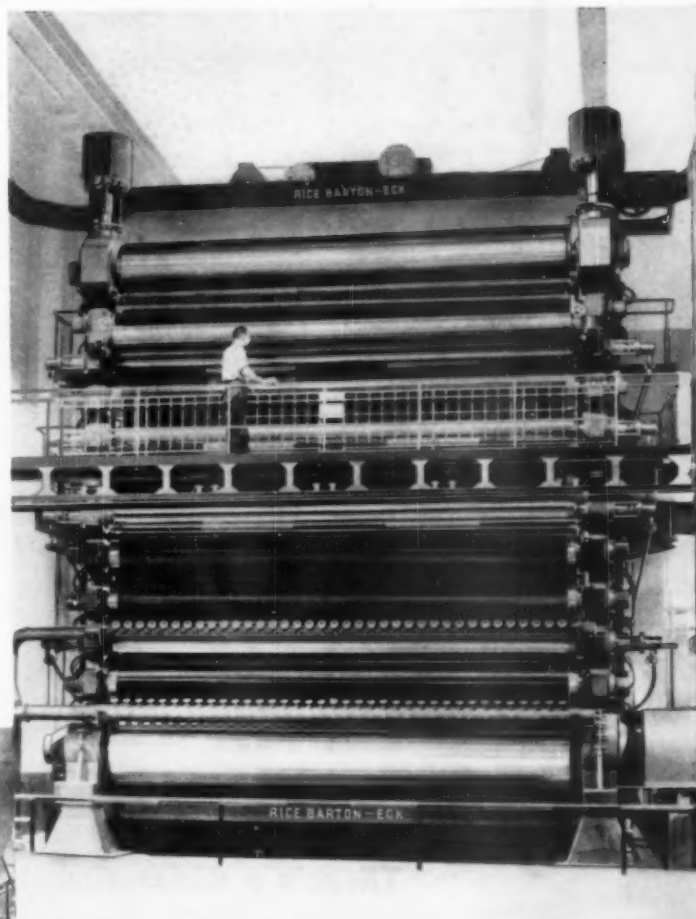
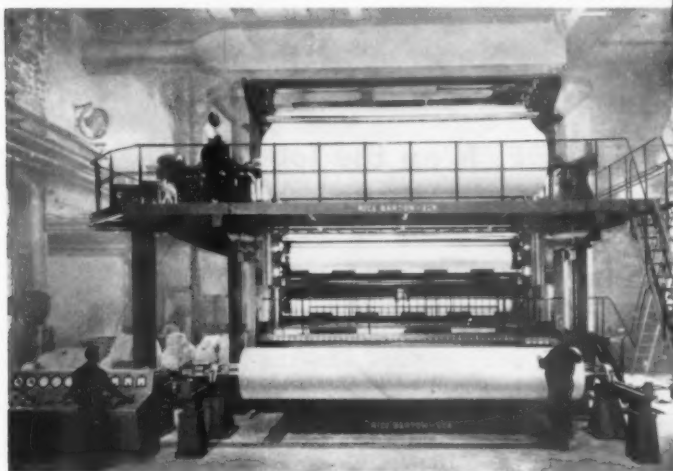
The **BIG** name in Stacks!

RICE BARTON-ECK builds HIGH SPEED SUPERCALENDERS BIG and builds them often. More than one supercalender a week was installed last year and over 350 have been installed in the past ten years.

This giant 230" stack is designed for production speeds up to 2500 f.p.m. and nip pressures up to 2000 pounds.

Here are the reasons RICE BARTON-ECK supercalenders are superior:

- High strength open front frames for faster roll changes
- Elevators both sides for easier threading and safer operation
- Hydro-pneumatic pressure system with electric automatic controls
- Unwind and rewind tension control, center or surface type with special roll handling equipment
- Automatic pressure release and quick roll lift



Above—Open front view indicates easy access to rolls. Bearings and housings come off with rolls, housings gibbed to frames. Elevators on both sides of stack are synchronized with threading speed.

Shown left—Closed side shows semi-automatic loading and unloading of rolls and reels. Unwind and wind-up by electric tension control. Control desk for electric and hydraulic systems.

For descriptive folder write today to

Rice Barton CORPORATION • WORCESTER, MASS.

FOURDRINIERS, PRESS SECTIONS, DRYER SECTIONS, CALENDERS AND SUPERCALENDERS, REELS, WINDERS, HEAD BOXES, SIZE PRESSES, BREAKER STACKS, DIFFERENTIAL DRAW CONTROL DRIVES AND CONE PULLEY DRIVES, PULPING EQUIPMENT, HIGH VELOCITY AIR DRYERS, TRAILING BLADE COATERS, FIBRE-FLASH DRYING SYSTEMS





**There's a BIRD-JONSSON SCREEN on the job
in a North American mill for every dot in the above space**

Bird-Jonsson Screens subject the stock to intense but controlled vibration while it travels over specially shaped, perforate plates. Capacity is large, screened stock comes clean, rejects are free of good fibres, power is as little as .06 HP per ton.

Bird-Jonsson Screens are recom-

mended for knotting, bull screening, tailings screening, taking the knots and chips out of black liquor ahead of brown stock washers, screening waste stocks ahead of fine screens, screening straw stocks and stocks from refiners, defibrators or masonite guns.

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SOUTH WALPOLE, MASS.

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Canadian Manufacturers of Bird Machinery
CANADIAN INGERSOLL-RAND COMPANY, Limited, Montreal

| | |
|---|----|
| Are Profits Too Low? by W. H. Chisholm | 65 |
| Kraft Newsprint Mill for Arizona | 67 |
| First TAPPI Pulp Bleaching Conference | 68 |
| Buckeye to Up Production 13% at Foley | 71 |
| International Scientists Meet in Germany | 72 |
| Georgia-Pacific Expands at Toledo, Ore. | 75 |
| New Type Sheet Cutter at Westvaco | 78 |
| Britain's NSSC Woodpulp Mill | 79 |
| Steam Generation Costs, by Gregory Gould | 83 |
| How Web Conditioners Work at Howard Smith | 84 |
| PIMA Meets on West Coast | 86 |
| New Revolutionary Pump-Refiner | 89 |

● PULPWOOD SECTION

| | |
|--|-----|
| APA Discusses Pulpwood Progress in South | 98 |
| Moir Writes on "the Land War" | 102 |
| Log Volume Measuring at West. Tech. APA | 103 |
| European Poplars Planted in B.C. | 104 |
| Celgar Readies Woodroom | 106 |

● OTHER DEPARTMENTS

| | |
|-----------------------------------|-----|
| The Editor Reads His Mail | 5 |
| Monthly Report | 7 |
| World Technical News | 13 |
| Strictly Personal—news of people | 111 |
| News of Suppliers to the Industry | 134 |
| New Equipment and Supplies | 137 |
| Index of Advertisers | 147 |
| The Last Word—P&P Editorial Views | 148 |

72

Outstanding Technical Meeting



Germany's top technical meeting of the year attracted scientists from 15 countries. Papers were excellent, says Editor Al Wilson. A highlight was first stereo electron micrographs of pulp fibers (pictured).

79

NSSC Pulping in Great Britain



Local hardwoods are successfully pulped by neutral sulfite process at Wiggins Teape organization's new Sudbrook mill in southern England. Kamyr continuous digester produces a fine paper pulp.

89

Inclined Pump-Refiner



A revolutionary inclined rotor pump, designed by German engineer, holds great promise in processing of bagasse, cotton linters and woodpulp fibers. The machine, a mixer as well as a pump, has attracted much interest in Europe.

98

Southern Pulpwood Round-Up



APA Southern Technical Committees have been taking a good hard look at outside chip storage and purchased chip quality—pushing a search into new harvesting and land management tools—discussing developments among pulpwood producers.

CIRCULATION DEPT., 500 Howard St., San Francisco 5, Calif. C. C. Baake, Circ. Mgr. Send subscription orders and changes of address to PULP & PAPER, above address. Include both old and new addresses.

RATES (including World Review Number): U.S. and Canada—1 yr., \$5; 2 yrs., \$8; 3 yrs., \$10. Other countries—1 yr., \$7; 2 yrs., \$12; 3 yrs., \$16. Orders for payment in British Commonwealth or European funds may be sent to: Harold P. deLoose Ltd., 7 St. James Square, Manchester 2, England.

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Alum tanks lined by B.F. Goodrich need no repairs in 20 years

THIS paper manufacturer wanted to cut costs by switching from powdered to liquid alum in their pulp mixture. But getting a tank to hold this corrosive solution was a problem. Wood tanks shrink, often leak. Lead-lined tanks require frequent repairs.

B.F. Goodrich engineers recommended Triflex rubber-lining for the two 5,000-gallon steel storage tanks. This lining is not one layer of rubber, but three—hard rubber for maximum corrosion resistance sandwiched between soft rubber for added protection.

Installed over 20 years ago, the two B.F. Goodrich rubber-lined tanks pictured here are still in excellent condition, have needed no repairs of either the lining or the metal.

In the past 20 years, we have lined hundreds of tanks for alum service, as well as more than 75 railroad tank cars, and thousands of pieces of pipe and fittings. While the initial cost of B.F. Goodrich rubber-lining is somewhat higher than wood or lead-lined tanks, the rubber-lined tanks do not leak, require little or no maintenance, and

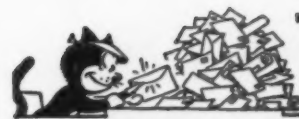
are, therefore, much more economical in the long run. For more information, write *B.F. Goodrich Industrial Products Co., Dept. M-50, Akron 18, Ohio.*



August 1960 — PULP & PAPER

PULP & PAPER

The Editor Reads His Mail



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PULP & PAPER — August 1960

Address letters to The Editor, PULP & PAPER, 1791 Howard St., Chicago 26, Ill.

Praise for the Neal Award

(Editor's Note: Following are excerpts from letters received by PULP & PAPER regarding presentation of the 1960 Jesse H. Neal Award to Editor Albert W. Wilson for his 1959 series dealing with the pulp and paper industry in Soviet Russia and a dozen European countries.)

—Oslo, Norway

"... Please accept my best congratulations on this award. It was very interesting indeed to study your articles from Europe and the Soviet Union last year, and your friends and readers in Norway surely welcome further articles from you."

E. JENSEN
 De Norske Papirfabrikanters
 Forening

—New York, N. Y.

"Congratulations on a well-earned Neal Award..."

ED McSWEENEY
 Vice President and Treas.
 Perkins-Goodwin Co.

—Beloit, Wis.

"... I believe you have done a wonderful job with your magazine, and any recognition you get is fully deserved. Congratulations to you, and I hope you get a lot more before you are through."

HARRY C. MOORE
 President
 Beloit Iron Works

—Chicago, Ill.

"This was a fine contribution and the award well deserved."

A. J. BARTH
 Vice President
 Sumner Sollitt Co.

—New York, N. Y.

"The Jesse H. Neal Award was well deserved."

KENNETH YOUNGCHILD
 Manager
 Paper Makers Chemical Div.
 American Cyanamid Co.

—Belmont, Calif.

"Congratulations on this fine award."

B. J. BANNAN
 Exec. Vice President
 Western Gear Corp.

—Dover, N. J.

"Congratulations on receiving the Jesse H. Neal Award for your objective articles covering your extensive visit throughout Europe."

E. J. WARD
 Vice President (Marketing)
 Cameron Machine Co.

—Jacksonville, Fla.

"I've just returned from Europe and was delighted to see the recognition you received for your six articles on Russia and Europe."

ROBERT D. EDWARDS
 President
 Holley-Edwards Sales Inc.

—Cleveland, Ohio

"... I certainly agree with the citation on the plaque, which commends you 'for outstanding journalism'."

J. E. STRATTON
 Reliance Electric & Engineering
 Co.

—Sheffield, Eng.

"Having read the six articles, I cannot but agree with the decision."

D. J. S. EARL, M. A. A.
 Don Earl Publicity Ltd.

Mistake on Mergers

—Neenah, Wis.

Editor: We have come upon a couple of inaccuracies in the pulp and paper merger lists published in your June issue, both involving Kimberly-Clark and both arising from the fact that there exist two American Envelope companies.

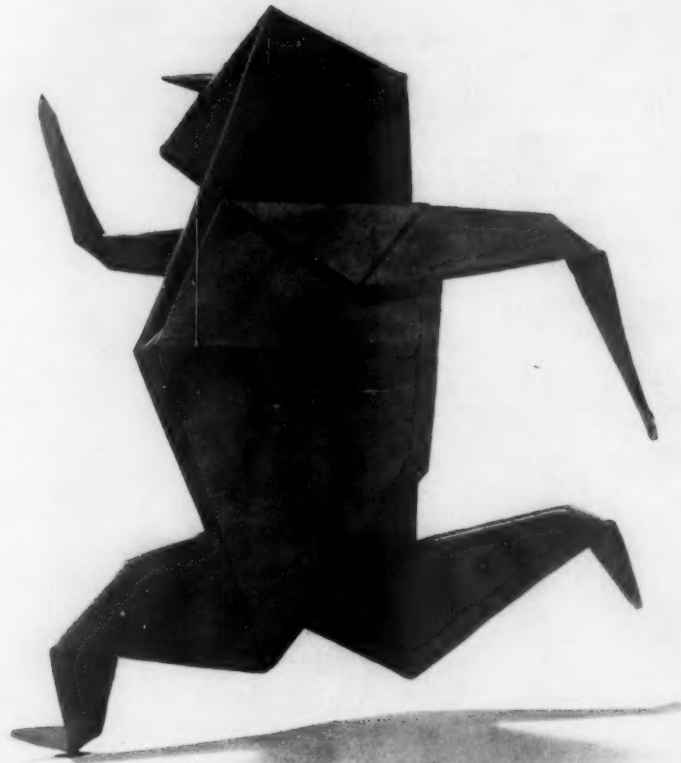
Kimberly-Clark acquired the *American Envelope Company of West Carrollton, Ohio*, along with that company's wholly-owned subsidiary, the *Karolton Envelope Company, Chicago*, in February of 1959. This statement would be correct in the page 78 listing, instead of the one naming Brown Superior Paper Goods Co.

Then, again, on page 77 the reference to Kimberly-Clark should be deleted from the listing of American Envelope Company, Chicago.

We're sorry to bring this up, but we're also sure you will understand our concern.

D. E. HUNTINGTON
 Public Relations Dept.
 Kimberly-Clark Corp.

Paper sculpture by Giuseppe Baggi



Pulp from Gottesman means...

PUNCTUALITY!

*Bleached and Unbleached Sulphite • Bleached Hardwood • Groundwood
Bleached, Semi-Bleached, and Unbleached Kraft*

GOTTESMAN-CENTRAL NATIONAL ORGANIZATION



Established 1886

Gottesman & Company, Inc. • Central National Corporation
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100 Park Avenue, New York 17, N. Y.



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MONTHLY REPORT — WORLD NEWS

COAST-TO-COAST PRODUCER . . . is status of Puget Sound Pulp & Timber Co., Bellingham, Wash., following a stockholder approval of merger of Hopper Paper Co., Taylorville, Ill.

TWELFTH NEWSPRINT MACHINE . . . for Mac-Millan, Bloedel & Powell River Ltd.—this one at Port Alberni, B.C. Firm announced \$24,000,000 project in mid-July. Machine manufacture and engineering firm involved to be reported at later date. Operation set for 1963. "While extensive surveys indicate that existing production capacity is sufficient for normal growths in our markets up to 1964-65," said Chairman John V. Clyne, "this added tonnage in 1963 will allow the company to anticipate increasing needs." Annual capacity of MB&PR will be about 900,000 tons.

PRODUCTION, SALES AT ALL-TIME HIGH . . . in fiscal year ended March 31, says Champion Paper & Fibre Co., Hamilton, Ohio. Earnings were up 26%, production of paper and board 17%, net sales 15.6%. Said Chairman Dwight J. Thomson and Pres. Karl R. Bendetsen: increased earnings did not fully reflect "the considerable improvement in overall performance."

WEST COAST WATER RIGHTS GRANTED . . . International Paper Co.'s application for industrial water from two Oregon coastal lakes granted by State Engineer's office. Set for the future: a mill at Gardiner, where IP now produces lumber, plywood.

DOUBLED CHLORINE DIOXIDE CAPACITY . . . at Foley, Fla. mill of Buckeye Cellulose Corp. Daily generation now 6 tons. Expansion undertaken in anticipation of continued trend toward increasingly brighter kraft and dissolving pulps. Principal suppliers included Knapp Mills, Pfaunder, Chemical Linings and Lapp Insulator.

MACHINE REBUILD IN GEORGIA . . . where Union Bag-Camp Paper Corp. is modifying No. 3 Fourdrinier in Savannah. Black-Clawson Co. is handling project. Featured will be a 236-in. Hydroflyte cantilever designed for quick wire change; it will incorporate the new Uni-Flyte air-operated wire guide.

SOUTH CAROLINA PAPER MILL CONFIRMED . . . by Bowaters Southern Paper Corp. Engineering work is underway for paper machine adjacent to pulp mill at Catawba. Unit will be designed for annual output of 75,000 tons printing paper, is expected in operation by 1962.

RECORD-BREAKING TOTAL OF 5,000 LABELS . . . will be "consumed" by average American family on products it buys this year. Says Duane Hillmer, president of Paramount Paper Products Co., this is 10.5% increase from 1959's previous high: 4,505 labels.

MAJOR EXPANSION BY RAYONIER INC. . . . at Hoquiam, Wash., will be larger than originally anticipated. A 32,000-sq. ft. shops and stores building is now included as part of the \$19,000,000 project.

RUMORS REVIVED . . . that Canadian Collieries Resources Ltd., Vancouver, B. C., may cooperate with a U. S. company in construction of a pulp mill near Union Bay on east coast of Vancouver Is. Definite statement from CCR expected soon.

5.3% INCREASE IN DOLLAR VOLUME . . . of folding cartons shipped in May as compared to same month a year ago reported by Folding Paper Box Assn. of America. Tonnage was up 1.4%. Volume for first five months is 2.3% over same period of last year dollar-wise, though cumulative tonnage record is fractionally off from 1959.

SLIME CONTROL AGENTS ACCEPTABLE . . . to the Food & Drug Admin. will be used in all newsprint produced in the U. S. by the end of the year. This is the expectation of the Waste Paper Utilization Council. All U. S. producers will cooperate in eliminating mercurials and odor-producing slimicides such as chlorophenols.

PULP USES EXPAND . . . Cellulose pulp is now used as a "traction aid" in extracting juice from fruits and berries. Rice hulls were formerly utilized but discarded in favor of the more sanitary pulp.

... Fluid Power

news

REPORT:
No. 12,100
MOTOR
TROUBLES
SOLVED

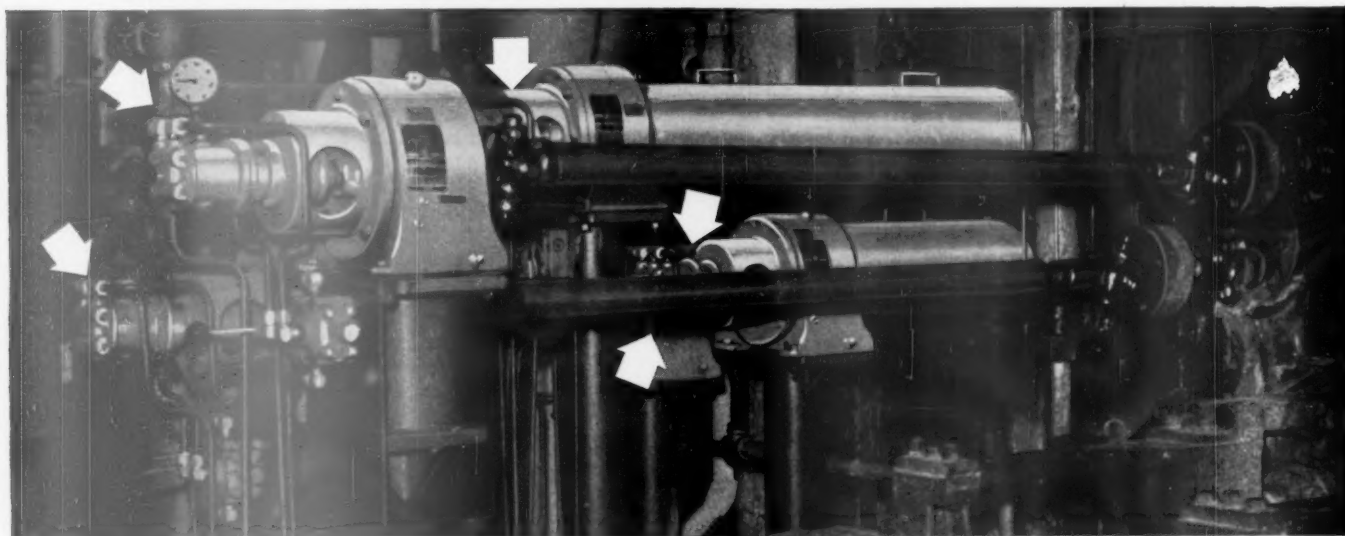
From Oilgear Application-Engineering Files

HOW OILGEAR "ANY-SPEED" DRIVES ON PAPER MACHINE SOLVED MOTOR TROUBLES

CUSTOMER: A Large Paper Company (Name withheld by request)

DATA: For modernizing a paper machine installed in 1913, rebuilt in 1927. Five drives required for distributor rolls (1 rectifier roll, 2 head rectifier rolls, 2 slice box rectifier rolls) in head box on wet, or fourdrinier end, to spread wet paper pulp "blanket" on wire mesh for removal of water. Due to standard mill practice of daily equipment washdown with high pressure hoses,

plus high humidity during operation, use of 5 electric, variable-speed drives would have resulted in excessive maintenance costs. Rotational reversal was desirable on the two slice box rectifier rolls. Must have smooth, steady, continuous slow-speed operation at full rated load. Roll synchronization within 10% allowable. Must be compact, easy to install, and maintain.



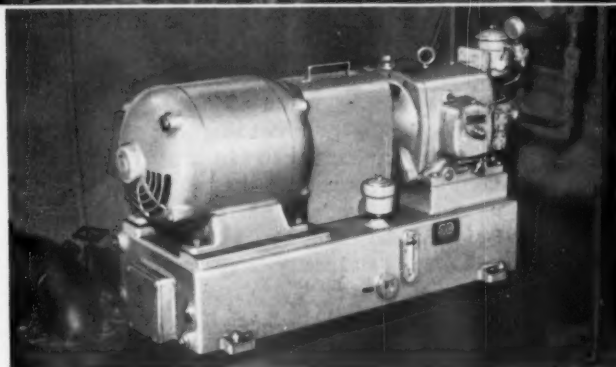
SOLUTION: Five "Oilgeareducers" — heavy-duty, constant torque, type "H" hydraulic motors integral with Falk Steel Reducers. As accurate roll synchronization was *not* required, motors were driven in parallel from a single Oilgear "DP" variable displacement pump. This pump has an automatic power-conserving control that reduces power input as load requirements diminish. Independent speed controls were installed for each drive. Two 4-way valves provide for instant, cushioned reversal required for two rolls. A completely sealed, compact, "Any-Speed" Fluid Power drive system . . . impervious to washdowns, automatically protected against overload, with full rated torque at any speed . . . to match any requirement. System is pressure and flood-lubricated automatically with the oil in the system. Over a year of continuous service—no maintenance required to date. Performance has proved superior to requested specifications and has made possible some improvements in paper structure.

For practical solutions to your linear or rotary drive problems, call the factory-trained, Oilgear application-engineer in your vicinity. Or write, stating your specific requirements directly to . . .

THE OILGEAR COMPANY

Application-Engineered Fluid Power Systems

1592 WEST PIERCE STREET • MILWAUKEE 4, WISCONSIN



Oilgear "DP" variable displacement pump with automatic power-conserving control, 10-hp electric motor, and reservoir shown mounted in basement below the paper machine away from danger of contamination.

This large producer of glassine and greaseproof papers, has also Oilgear-equipped the winder drive in their converting plant glue machine; the center winder drive on a super-calender stack; the unwind and rewind drives on another super-calender; plus many other mill applications.

MONTHLY REPORT – WORLD NEWS

ABOLITION OF ALL TARIFF RESTRICTIONS

... between Canada and the U. S. on pulp, paper, lumber, plywood, hardboard and other wood-based products is favored by Harold S. Foley, vice chairman of Mac-Millan, Bloedel & Powell River Ltd. Present tariff structure, he said, is antiquated and cumbersome and discourages business between the two nations. It deals with products and materials whose existence wasn't even conceived when regulations were drafted 30 years ago.

INCREASED BRIGHTNESS AND STRENGTH . . .

in bleached paper and board have resulted from a new chlorine dioxide system at the No. 1 mill of St. Regis Paper Co., Pensacola, Fla. New process is fourth stage in kraft bleach plant supplying pulp to one Fourdrinier and one cylinder machine. New bleaching sequence is: (1) chlorination; (2) first caustic extraction; (3) first hypochlorite; (4) chlorine dioxide; (5) second caustic extraction, and (6) second hypochlorite.

"REVOLUTIONARY NEW" . . . food packaging material said to be capable of retarding spoilage and extending shelf life has been introduced by Paterson Parchment Paper Co., Bristol, Pa. The ivory-colored vegetable parchment is a mold-inhibiting material designed especially for packaging cheese, preserves, baked goods, processed meats and other products that tend to form mold in storage. It has been approved by the FDA as meeting requirements of the 1958 amendment to the Federal Food, Drug & Cosmetic Act.

ENLARGING PACIFIC NORTHWEST KRAFT MILL

... Cascade Kraft Corp. is undertaking \$5,000,000 expansion to practically double production capacity at Wallula, Wash. pulp and paper mill. Daily capacity to be boosted to 375 tons. Additions will include continuous digester, increased drying capacity, enlargement of chemical recovery system.

SPEED, EFFICIENCY INCREASED . . . at Consolidated Paper Corp. Ltd., Port Alfred, Que., where first of four Dominion Engineering Works pressure stock inlets has been installed.

"EXTREME IMPORTANCE" . . . of a meeting with the local power company in initial planning stages of an industrial plant with a large electric load was emphasized at the recent summer General Meeting of the American Institute of Electrical Engineers.

COATED PRINTING PAPER EXPANSION . . . set for Bucksport, Maine mill of St. Regis Paper Co. Including new coating and other equipment, project will cost an estimated \$8,500,000. In addition to coater, two full-width supercalenders, new winder and breaker stack will be added to No. 1 paper machine. Plans also call for additions to existing coating preparation plant, electrical distribution system and new roll grinding facilities.

HOPSCOTCHING THE NORTH AMERICAN INDUSTRY

... Finch, Pruyn & Co. Inc., Glens Falls, N. Y., has installed a second digester and auxiliary equipment; the Chicago Bridge & Iron Co. unit has daily capacity of 60 tons, increases firm's hardwood consumption from 600 to about 1,000 cords per week. . . . Flintkote Co. will build a 115,000-sq. ft. corrugated container plant at Magnolia, Miss. . . . Hammermill Paper Co. has purchased controlling stock interest in Old Colony Envelope Co. from Strathmore Paper Co. . . . Allied Paper Corp. has acquired as a wholly owned subsidiary Carmax Corp., Houston, Texas manufacturer of business forms.

MORE ON THE INDUSTRY . . .

Downingtown Paper Co. has merged its two subsidiaries, Downingtown Paper Box Co. and Simplex Paper Box Corp. . . . Riegel Paper Corp. and Bloomer Bros. Co. have agreed to a proposal merging Bloomer (Rochester, N. Y. carton manufacturer and converter) into Riegel. . . . J. C. Wilson Ltd., subsidiary of Price Bros. & Co. Ltd. (Quebec City), has purchased the assets of Victoria Box & Paper Ltd., Victoria, B. C. . . . General Box Co., Des Plaines, Ill., has purchased Craft Corp., Roseville, Mich. manufacturer of corrugated containers. . . . National Gypsum Co. has authorized acquisition of stock of Allen-town Portland Cement Co.

Products and services can you use from BECCO?

New Cold Caustic Bleach Process

Looking for a way to use greater amounts of low-cost, more plentiful pulp—without capital investment for bleach equipment? Then let a Becco Sales Engineer show you our new technique* which allows you to bleach in the same equipment regularly used for the manufacture of cold caustic pulp.

In this new process, peroxide bleach liquor is added at the Bauer Refiner, and bleaching occurs during the refining operation. Bleach response depends on refiner densities.

Up to 20 points brightness increase has been obtained in commercial operations to date, and with no additional steam costs, no holding time, and no excessive chemical costs.

Becco can assist you immediately in setting up a production run and evaluating results. First step: use the coupon to let us know you're interested.

*—Patent Pending



TECHNICAL BULLETINS

We got 'em—
You can have 'em!
They're FREE!

Years of experience in paper and pulp processing have produced a library of technical information which is available in individual bulletins, free on request. Use the coupon below to let us know which you'd like to receive.

No. 31 — Groundwood Bleaching Variables — A Statistical Approach.

No. 32 — H_2O_2 Bleaching of Chemicals and Mechanical Pulps.

No. 47 — Peroxide Bleaching of Pulps.

No. 48 — High-Density Pulp Bleaching.

No. 64 — Development Studies on Last-Stage H_2O_2 Bleaching of Alkaline Pulps.

No. 65 — Peroxide Bleaching of Southern Pulps.

No. 66 — Becco Laboratory Procedures for Pulp Bleaching, 1955 Ed.

No. 91 — Peroxide Bleaching of Chemi-Mechanical Hardwood Pulps.

No. 92 — Peroxide Bleaching of Chemical Pulps.

Problems in handling Hydrogen Peroxide



Becco's Four-Fold Engineering Service Program—offered free—includes:

1. Comprehensive survey of your facilities.
2. Specific proposal with recommendation of proved equipment and where it is obtainable.
3. Installation supervision by Becco.
4. Periodic inspection and permanent service.

Can you use this free Becco help, based on more years of experience with bulk handling of H_2O_2 than any other manufacturer? Use the coupon to let us know.

BECCO



BECCO CHEMICAL DIVISION, FMC
Station B, Buffalo, New York

Gentlemen: Dept. PP-H
Please have a Sales Engineer give me more information on Becco's Cold Caustic Bleach Process.

NAME _____
FIRM _____
ADDRESS _____
CITY _____
ZONE _____ STATE _____

BECCO



BECCO CHEMICAL DIVISION, FMC
Station B, Buffalo, New York

Gentlemen: Dept. PP-G
Please send me a copy of each of the following bulletins:

NAME _____
FIRM _____
ADDRESS _____
CITY _____
ZONE _____ STATE _____

BECCO



BECCO CHEMICAL DIVISION, FMC
Station B, Buffalo, New York

Gentlemen: Dept. PP-B
Please tell me more about your Four-Fold Engineering Service.

NAME _____
FIRM _____
ADDRESS _____
CITY _____
ZONE _____ STATE _____

MONTHLY REPORT — WORLD NEWS

EUROPEAN SOCIETY PROMOTES UTILIZATION

... Scientists from nine nations have launched the International Wood Research Society primarily to promote more efficient utilization of wood and wood products. Participating countries are: Belgium, France, Germany, Great Britain, Italy, Norway, the Netherlands, Sweden, Switzerland.

NEW SHIP ORDERED BY BOWATER ... for transporting pulp, pulpwood and newsprint between North America, Scandinavia, United Kingdom. Motor vessel of 5,400 tons will measure 325 ft. Ship is ninth built for Bowater Steamship Co. since 1954.

REDUCED PRICES ... for paper (other than newsprint) and board to EFTA countries were to take effect in Finland July 1. Manufacturers announced reductions would be by amounts equal to the 20% tariff EFTA reduction effective same date.

FIREPROOF PAPER IN JAPAN ... where two firms—after three years of research—have come up, says the report, with the genuine article. It is from kraft pulp with sulfate and synthetic resins. It is claimed the paper does not burn and under flame or heat transforms into carbonized material.

EXPANSION TO 60,000 TONS ... container board grades at Millicent, S. Australia, where Cellulose Australia Ltd. will install an eight-cylinder paperboard machine. Supplying the unit and stock preparation equipment is Black-Clawson International.

MILESTONE TOWARDS GUATEMALAN INDUSTRIALIZATION ... is paper mill of Industria Papelera Centroamericana SA that went into production in June. Plant is equipped with 120-in. Fourdrinier and 65-in. cylinder board machine. Immediate annual capacity: 9,000 tons kraft papers, bonds, tissues, linerboards and 6,000 tons corrugating medium, tag, boxboard, index, assorted boards. Mill is at Esquintla, 40 miles west of Guatemala City.

BOWATER IN EUROPEAN EXPANSION ... Bowater Paper Corp., Ltd., through its European holding Company (Bowater Europe SA, Brussels), has acquired controlling interest in Paper Industries Ltd., a Swiss holding company that controls two French firms—Les Papeteries de la Chapelle SA (St. Etienne) and La Cellulose de Strasbourg SA (Strasbourg).

ARGENTINIAN INVESTMENT ... International Finance Corp. has invested \$3,000,000 in Papelera Rio Parano SA for construction of bleached sulfite mill. Present capacity will increase from 6,000 to 17,400 metric tons. Total cost: \$5,300,000.

SPANISH PAPERMAKER SEEKS U. S. AID ... in technical and financial assistance in modernizing two paper mills. La Papelera Catalana is located in Barcelona.

SYNTHETIC PAPER PRODUCED WITHOUT CELLULOSE ... has been made in the Feldmuehle laboratories, Dusseldorf, W. Germany. Usable for printing, its cost will prevent competition with newsprint or other types in large quantities. Special qualities include: light-fastness; resistance to moisture, dirt or chemicals, and folding strength.

WORLD'S FIRST LARGE-SCALE PLANTING ... of bamboo on a scientific basis is being made on 500 acres on Bataan, Philippine Islands, where Bataan Pulp & Paper Mills will build first integrated pulp and paper mill in the islands.

FOR FIRST TIME IN ITS 114-YEAR HISTORY ... Mead Corp., Dayton, Ohio, has established a foreign subsidiary. Mead SA at Zurich, Switz., will centralize the firm's international operations, will engage in sales and licensing activities and explore possibilities for manufacturing some of Mead's established products.

COFFEE-FOR-PULP ... a paper mill being built in the Dept. of Caldas, Colombia, will use Finnish woodpulp to be supplied in exchange for Colombian coffee.

SCAPA

The World's Leading Exponent of

SYNTHETIC CONTENT DRYER FELTS

★ **"Syntho-Cotton"® Dryer Felts**

with 10/12% synthetic content.

★ **"Syntho-Asbestos"® Dryer Felts**

with 20/25% synthetic content.

★ **"Drylon" Dryer Felts** with 45/50% synthetic content.

★ **"Dacron-Nylon" Dryer Felts**

100% synthetic content.

SCAPA Pioneered and Manufactured
under one or more of the following:

| | |
|--------------------------|-----------|
| U.S. Pat. Nos. 2,612,190 | 2,629,909 |
| U.S. Pat. Nos. 2,879,580 | 2,882,933 |
| U.S. Ser. Nos. 595,616 | 604,279 |

14

SCAPA DRYERS, INC. WAYCROSS
GEORGIA •

SELLING AGENTS

Morey Paper Mill Supply Company

309 SOUTH STREET, FITCHBURG, MASS.

John B. Chandler Co.

1735 OCEAN FRONT, ATLANTIC BEACH, FLA.

Tipka Supply Company

415 JACKSON ST., OREGON CITY, ORE.

Uniform Suspension—Sweden

ANDERSSON, OLLE. *Svensk Papperstidn.* 63, no. 4:86-97 (Feb. 20, 1960). [Engl.; Swed. and Ger. sum.] Abstr. Bull. I.P.C. 30:1328.

The uniformity of fiber suspensions is usually measured by determining variations in the amount of light transmitted either by a flowing suspension or by a rotating sheet prepared from a suspension. The uniformity (cloudiness) of stationary suspensions can be determined only on rotating sheets, although it suffers from the disadvantage that the state of flocculation may change during sheet formation. Stationary fiber suspensions can be examined either by direct counting of fiber flocs or indirectly by photometry on a photograph of the suspension taken against a homogeneously illuminated background. Both methods were evaluated. An automatic floc counter is described, and the conditions for photographic measurements are discussed. Direct counting was found to suffer from inaccuracies caused especially by subjective factors. In photometry, the determination of optimum extinction was found to be preferable to transmission measurements, since it is more closely related to the distribution of solids. Exceptional results obtained with this method suggest a linear relationship between the root mean square deviation of extinction and the sedimentation (flocculation) time of stationary fiber suspensions. The theoretical background of this relationship is elucidated. For accurate determinations, a large amount of data is required, and their mathematical evaluation is time consuming.

Shive Removal—Germany

BRECHT, WALTER, and MICKLEY, GÜNTHER. *Das Papier* 14, no. 2:52-5; no. 3:91-6 (Feb.-March 1960). [Ger.; Engl. and Fr. sum.] Abstr. Bull. I.P.C. 30:1322.

With advances in the preparation of pulp stock suspensions, progress has also been made in equipment used in the removal of shives from such suspensions. The authors made the extensive study of the Escher-Wyss "deshiver" with special emphasis on machine operation, output, power consumption and lowering of shive content. The materials studied included newsprint, wastepaper stock, art paper stock, straw pulp, glassine stock, mechanical pulp and a "Hol-

Presented with permission of The Institute of Paper Chemistry, under supervision of Curtis L. Brown, editor of IPC Bulletin. Photostats or translations of original reports available at reasonable cost by writing Eugene Bunker, librarian, Institute of Paper Chemistry, PO Box 498, Appleton, Wis., U.S.A.

lerith" board (punched-card) stock and contained a high amount of shives, ranging from 15% (for newsprint) to 65% (for Hollerith board). The best operating conditions for each stock were determined, and it was found that the machine was able to "deshive" all stocks effectively with relatively low power consumption.

Power Production—Norway

GRIMSRUD, LARS. *Norsk Skogind* 14, no. 2:6572 (Feb. 1960) [Norw.; Engl. Sum.] Abstr. Bull. I.P.C. 30:1319.

Nuclear power, requiring large units and investment, is not yet competitive with hydroelectric power or process steam. Norway's industry covers 80% of its fuel demand with oil, mostly heavy residual fuel oils. The pulp and paper industry has switched nearly 100% from coal to fuel oil. Low-temperature corrosion problems in steam generating plants caused by these oils have been practically solved by the development of suitable anti-corrosive additives. Statistical data on power and heat consumption in the Norwegian pulp and paper industry are given, and the possible use of back-pressure turbines for generation of electricity is discussed. If the pulp and paper industry would utilize its full potential for power production, it could cover 50% of its own power demand at relatively low cost. Recent developments in dryers have resulted in up to 100% production increases, due to savings in energy.

Chip Penetration—Germany

STOCKMAN, LENNART. *Das Papier* 14, no. 3:85-91 (March 1960). [Ger.; Engl. and Fr. sum.] Abstr. Bull. I.P.C. 30:1324.

In the chip penetration studies, emphasis was placed on the effects of steam treatment and impregnation under pressure. Results were evaluated partly by determining the amount of screening after the digestion and

partly by direct weighting of the chips during the penetration stage. Best results were obtained by combining steaming and pressure penetration. Chips could be pulped by aqueous solutions of sulfur dioxide within reasonable time intervals, provided the digester could withstand a minimum pressure of 15 atm. Paper pulps prepared by the sulfurous acid method were obtained in normal yields and showed normal strength proportions.

Horizontal-Feed Chipper

HANSEL, SIDNEY. *Das Papier* 14, no. 2: 56-8 (Feb., 1960). [Ger.; Engl. and Fr. sum.] Abstr. Bull. I.P.C. 30: 10:1337.

Deviating from the usual chipper design, in which the charge is supplied on sloping channels, a new horizontal-feed chipper has been constructed, in which the knives are positioned so that their edges do not aim at the center of the knife disk but are displaced somewhat parallel to the direction of rotation of the machine. Advantages of this new design principle have been demonstrated in practice trials and include uniform passage of the wood and vibration-free operation requiring less massive foundations. Expenditures are reduced by installation of thin knives mounted in special pockets which facilitate their exchange and external adjustment according to the amount of wear.

Z-Orientation—Sweden

AALTIÖ, E. A. *Svensk Papperstidn.* 63, no. 3:58-61 (Feb. 15, 1960). [Engl.; Swed. and Ger. sum.] Abstr. Bull. I.P.C. 30: 10:1312.

The orientation of crystallized cellulose in the direction of the Z-axis (i.e., perpendicular to the plane of sheet formation on the wire) has been measured in a series of paper sheets made from the same pulp stock, and the crystallite orientation was used to draw conclusions regarding the Z-orientation of the fibers. The Z-orientation was found to increase with increasing basis weight and drainage time and to decrease with increased wet pressure and beating time. Explanations for these effects are offered. Measurements of the delamination force (peel adhesion of handsheets) showed it to be affected favorably by at least two factors, viz., the fiber-to-fiber bonding and the Z-orientation.

New Guardistor
THE MAN & THE MOTORS



FROM WESTINGHOUSE

Guardistor motors let you match the full capability of the motor to the job— with complete safety—absolute confidence

Our Marketing Manager says:

- "You can match the motor to the load . . . use all the motor you are paying for.
- Provides positive protection based on winding temperature . . . *not* load current and/or power supply fluctuations.
- Eliminates time and expense of changing winter-summer heaters. No nuisance tripping, it's fail-safe . . ."

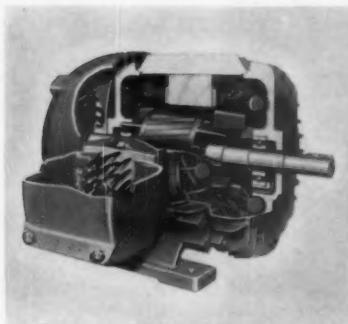
Our Engineering Manager says:

"With the breakthrough development of the Westinghouse Positive Temperature Coefficient thermistors, for the first time we can provide inherent protection against motor failure caused by excessive heat. The solid-state thermistors buried in the windings instantly sense excessive heat from any cause and simultaneously warn of trouble or automatically take the motor off the line. Thus, motor protection is placed where only true motor protection can be . . . in the windings."

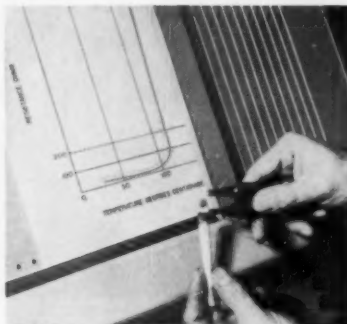
Call your Mr. Westinghouse for the application of a Guardistor* motor to your drive requirements . . . write for *Questions and Answers About . . . Guardistor* (B-7876). Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania.

*Trade-Mark

J-22160



Unlike remotely located sensing devices, PTC thermistors are buried in the windings of the Guardistor motor, instantly equating all temperature factors.



Ever alert PTC thermistors constantly totalize temperature, statically triggering an action *only* if critical temperature is reached.

MOTOR & GEARING DEPARTMENT

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**PUGET
PULP**

when it must be **UNIFORM**

Operating floor of Puget Pulp's digesters



start with PUGET PULP...

...the uniformly strong, clean, white
chlorine dioxide bleached
softwood sulphite

PUGET SOUND PULP & TIMBER CO.
BELLINGHAM • WASHINGTON

TEST SHEET

TEAR OFF THIS SHEET ...

**WET IT!
WET IT!**

... THEN TEST IT! (USE APPROVED TAPPI STANDARD METHOD FOR TESTING WET STRENGTH.)
NOTE THE HIGH WET STRENGTH AND HOW WELL THE SHEET MAINTAINS IT. FOR THE SECRET
OF THIS SHEET'S WET STRENGTH, JUST TURN PAGE.

CYANAMID

TEST SHEET

THIS SHEET PRODUCED WITH CYANAMID'S PAREZ 607[®]

MELOSTRENGTH[®] RESIN

MELOSTRENGTH

GIVES YOU THE WET STRENGTH YOU NEED TO MEET EXACTING SPECIFICATIONS



Like all papers made with a MELO-STRENGTH Resin, this sheet has extraordinary strength even when soaked. It had its strength the moment it left the machine. It will keep its strength even under storage conditions of high humidity. It is resistant to most chemicals and acids. MELOSTRENGTH can be applied to papers of practically

every strength and grade. It is especially recommended for grocery bags because it minimizes bursting danger during rainy day shopping or from frozen foods or other moist articles. MELOSTRENGTH is also ideal for the manufacture of bathmats, laundry tags, filter paper, butchers' wrap, photographic paper and other wet strength papers. For full information, get in touch with us.

CYANAMID

AMERICAN CYANAMID COMPANY • PAPER CHEMICALS DEPARTMENT

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The Beloit Album



SOUTHERN LAND TIMBER AND PULP Corporation's exec. vice president, Edward L. Cowan (*second left*), at a recent Beloit conference, discusses design details with Beloit's C. E. Macklem, E. H. Neese, Jr., E. D. Beachler, and D. R. Schamp.

(*Left*) **INTERNATIONAL PAPER COMPANY'S** Mobile Mill assistant UME, T. S. Bartley (*l*) is seen on the erecting floor with Beloit designer D. E. Leavitt. They are discussing a roll wrapper.



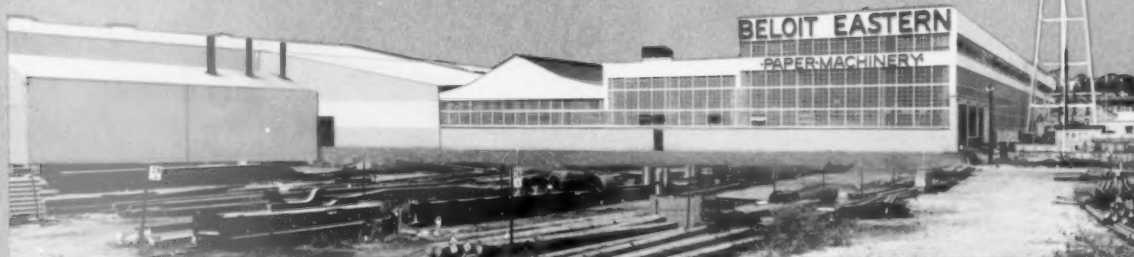
(*Above*) **DUNN PAPER COMPANY'S** president, G. C. Dunn (*r, c*) and mill manager, W. E. Woods (*l, c*), look over their new Fourdrinier with Beloit's sales manager, F. G. Ramsden (*r*), and staff engineer M. M. Cobb.



(*Right*) **CONTINENTAL CAN COMPANY'S** C. S. Huestis (*l*) and Beloit division sales manager, C. H. Swartz, get a close-up view of a vat inlet on the main erecting floor.

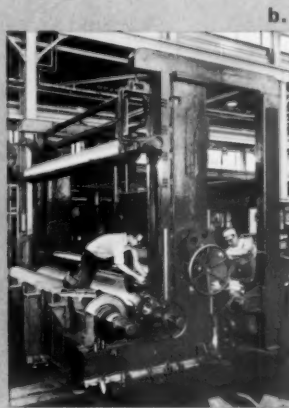
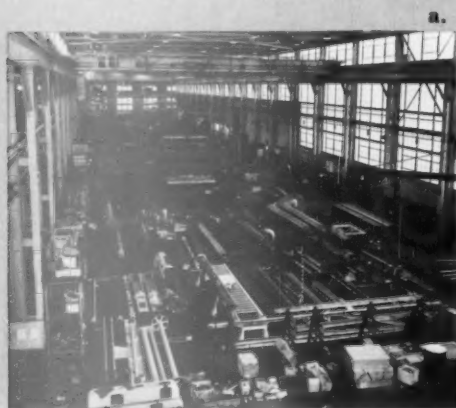
Progress report from the Beloit Group

...expanding to serve you better



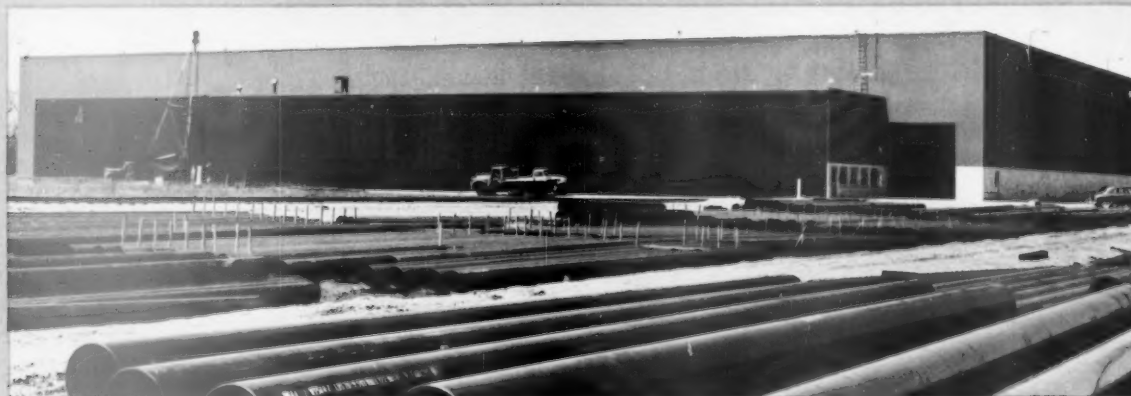
BELOIT EASTERN CORPORATION, Downingtown, Pennsylvania, reveals some dramatic changes since its recent expansion program. Total plant area is now 300,000 sq ft. Building pictured above, at left, houses the expanded foundry and core room. This addition also houses a completely new and modern welding department. Beloit Eastern's foundry now has sufficient productive capacity to meet the needs of its own shops, as well as the casting requirements of E. D. Jones Corporation. Expanded sales and engineering activity further increase Beloit Eastern's

effectiveness in the field of finished product processing equipment. Views at Beloit Eastern are seen below. (a) Main erecting area bustles with activity as finished product processing equipment nears completion. Shipping area in foreground will move into new building later this year. (b) Model M Winder nears completion on the main erecting floor. Winder is equipped with Beloit's new improved slitting arrangement. (c) Engineering department where designs for finished product processing equipment begin. Engineering and sales departments share these spacious quarters.



(Below) **BELOIT IRON WORKS, WELDING DIVISION**, is located three miles south of main plant, near Rockton, Illinois. New facilities, embracing the welding and fabricating division in an area of 75,000 sq ft, enable Beloit to offer a new and comprehensive range of fabricating

services. This site is ideally located, with direct rail siding, a mile's drive from the Northwest Tollway. View below, with pipe storage in foreground, shows plant shortly after completion. Beloit's expansion plans also include a new 45,000 sq ft Research and Development Center.



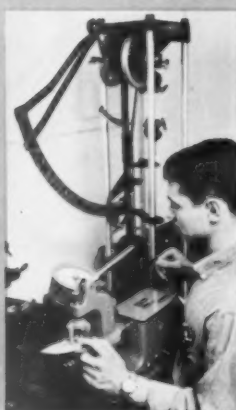


E. D. JONES CORPORATION, Pittsfield, Massachusetts, occupies this modern plant, built for utmost efficiency in the design and manufacture of precision pulp and stock preparation equipment. Aluminized steel is the basic building material. The plant covers an area of 200,000 square feet and can be expanded easily to 640,000 square feet. It is functionally modern in every respect, both office and

production areas featuring the latest in facilities. The production area is lighted by high output fluorescent lamps and is heated by radiant gas unit heaters, each with integral thermostat. Air conditioned, well-lighted offices are designed to give complete working comfort and efficiency. Plant has complete rail and truck shipping-receiving facilities. Switch tracks lead to main line of New York Central.



ACTIVITY AT JONES is evident in this long-range view of one of the seven manufacturing bays, each 50 wide by 300 feet long. Extensive line of pulp and stock preparation equipment is produced.



PAPER TESTING is part of the job in the new Jones Research and Development Laboratory.



ENGINEERING AREA, spacious, well lighted, where newest pulp and stock preparation equipment starts on drafting boards.



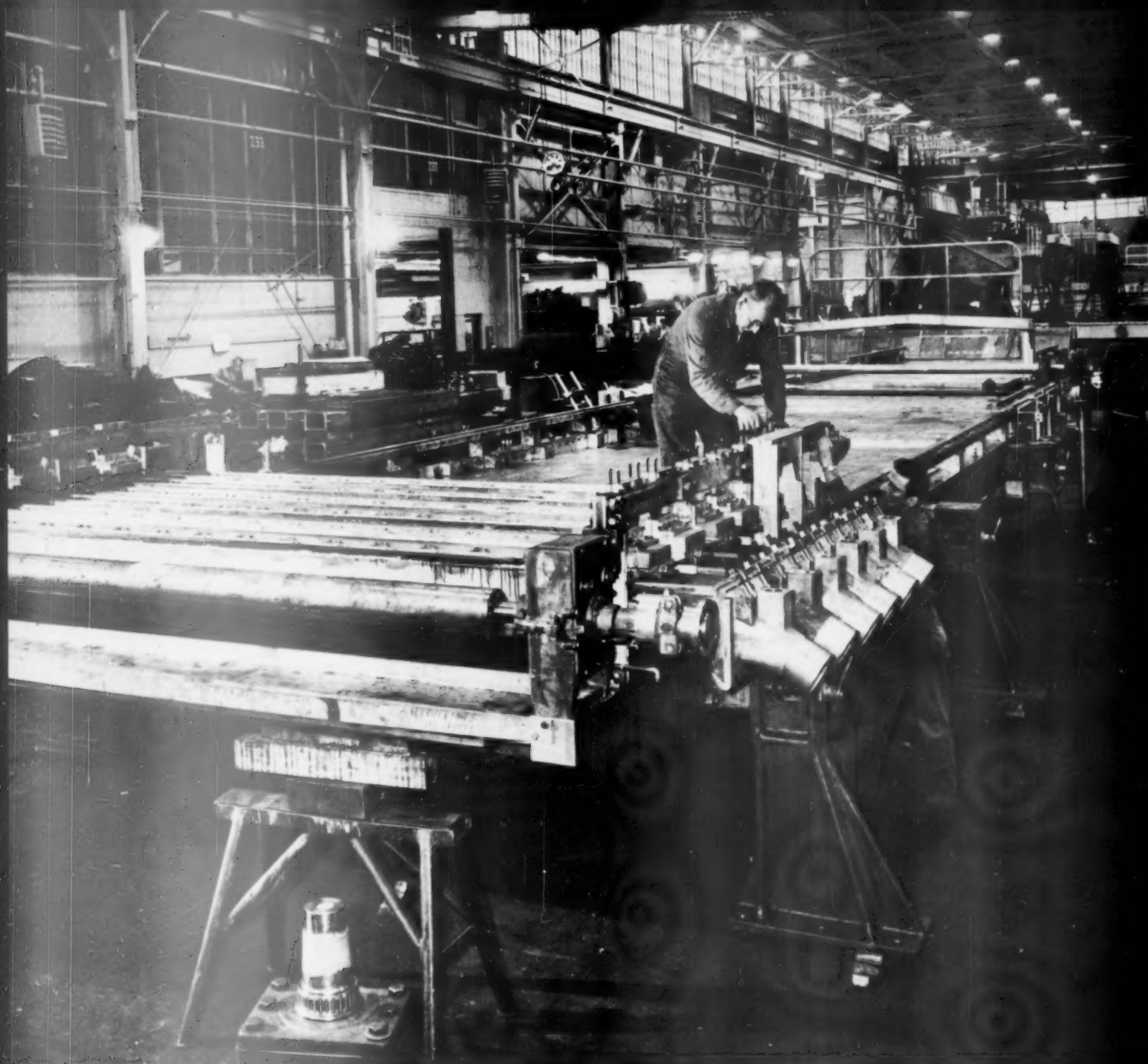
ASSEMBLING BARS on Jones Adapta-Plug, with Fulbar Shell Fillings in background, familiar to all papermakers.

your partner in papermaking

BELOIT

PAPER MACHINERY





S. R. CHRISTENSEN

FOURDRINIER FOR DUNN PAPER COMPANY as it appeared on main erecting floor at Beloit, Wisconsin. This 132" Fourdrinier was part of a major machine rebuild at the Port Huron, Michigan, mill. The machine is now in full production, producing the famous Dunn specialty papers. Rugged dependability best describes a Beloit-built Four-

drinier—designed to promote natural drainage, permit higher speeds, improve general sheet characteristics, and help reduce machine downtime. Beloit builds Fourdriniers of every type—stationary, cantilever, pit stringing removable, and aisle stringing removable. Whether you need a completely new Fourdrinier or a rebuild—call on Beloit.

your partner in papermaking



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BELOIT
PAPER MACHINERY



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It takes a come-hither illustration to do this. One that's reproduced on Alpha Protein processed paper or board. This chemically isolated soy protein adhesive improves the brilliance and opacity of coated paper. It gives a remarkable levelness and smoothness to the product.

For 25 years, Chemurgy Division chemists and technical men have been working toward this present day when the big emphasis is on coating developments. The foremost types of soy protein binders are Alpha Protein and Chem-Pro. Seasoned technical men, with vast experience in mill coating operation are ready to assist you in any problem. A call or a letter will receive prompt attention.



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CHEMURGY
EXPERIENCE

CENTRAL SOYA COMPANY, INC. CHEMURGY DIVISION

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This is a sample of 4-color process lithography on Alpha Protein-processed paper

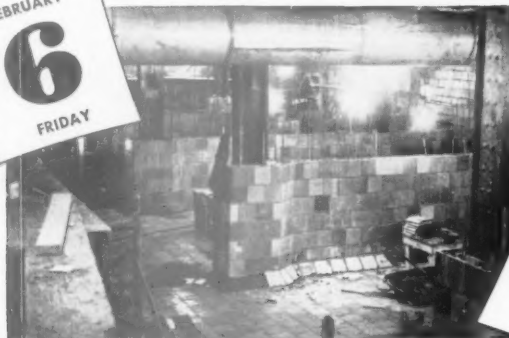
Chest out of Service

FEBRUARY
3
TUESDAY



Preliminary Clearing Operations Begin

FEBRUARY
6
FRIDAY



FEBRUARY
8
MONDAY



Installation Complete after 6 Days

Only 8 DAYS

...Only STEBBINS has the
Experience, Manpower
and Facilities for this
EMERGENCY SERVICE

Photos courtesy of Great Northern
Paper Co., Millinocket, Maine

SCOPE OF WORK:

Line a 91' x 48' x 14'3" Chest
Install 4 SEMTILE® Midfeathers
Tile Encase 2 Steel Columns

MATERIALS INSTALLED:

14,000 SEMTILE®
5,000 SEMTILE®
150 cu. yd. concrete floor fill
20,000 common brick
400 concrete block
3900 sq. ft. wire mesh

TIME SCHEDULE:

7 days for material delivery
6 days for tile installation
Chest out of service only 8 days
Only 2 weeks from concept to completion

ACKNOWLEDGEMENT:

This remarkable performance was made possible only by the extreme cooperation of the engineering and maintenance staff of the Great Northern Paper Company.

SINCE 1884
Specialists in
Design
Installation
and Servicing
of Linings and
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*How to Get
The New Roll**

CAMERON IMPERIAL WINDER serving with a high speed supercalender at the St. Francisville (La.) mill owned jointly by Crown Zellerbach and Time Inc.

**the finished roll of superb new quality!*

It is sometimes expedient to purchase a winder as part of a mill or finishing room "package" installation. Even so, there is no reason to wind up with less than the superb quality of *The New Roll!* A Cameron integrated winding system, job-fitted by Cameron specialists, may be purchased for use with any paper machine of any make, or with any coating or calendering machine. *And that's the only way to get The New Roll!*

In the action photograph above a new Cameron Imperial winding system, integrated from unwind to rewind, (246" trim width, 72" rewind capacity) is running at speeds up to 5000 fpm* on 28 to 85 lb. coated book papers. Here are

some of the features of this job-fitted Cameron system:

Roll control starts with a Cameron H3PMR continuous duty unwind brake responding to signals from a Cameron cam controlled adjustable automatic tension sensing system. Easy setups with tight starts and firmly set cores are assured by such features as the Cameron hydraulic riding roll lift, and hydraulic down-pressure control. Other features which contribute to superb roll quality are the riding roll driven at both ends for even torque distribution, differential speed rewind drums which play a star role in Cameron automatic roll density control, and the Cameron isolated gear

box which drowns main drive vibration. Minimizing downtime and contributing to high productivity are such features as the Cameron automatic shaft injector, the Cameron hydraulic roll lowering table with Cameron automatic shaft puller and core loader, the air-operated Cameron Quick-set shear cut slitters, and the centralized control panel.

We invite you to visit the unique Cameron Research and Development Service at Dover, N. J. See the operation of your own job-fitted "pilot" system, perfectly integrated from unwind to rewind, and engineered by specialists to meet your precise requirements.

*Speed of Cameron Imperial is rated in excess of 8000 fpm depending upon machine width, number of cuts, tension, and characteristics of material.

AA-382

CAMERON
a team of specialists

54 YEARS devoted to the design and manufacture of slitting, roll winding, unwind and web control equipment.

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Canada: Cameron Machine Co. of Canada, Ltd., 14 Strachan Ave., Toronto, Ont.
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famous TIDLAND pneumatic shafts are sold exclusively through Cameron

NEW IDEA IN MATERIAL HANDLING CUTS COSTS AT BIRD & SON, INC.

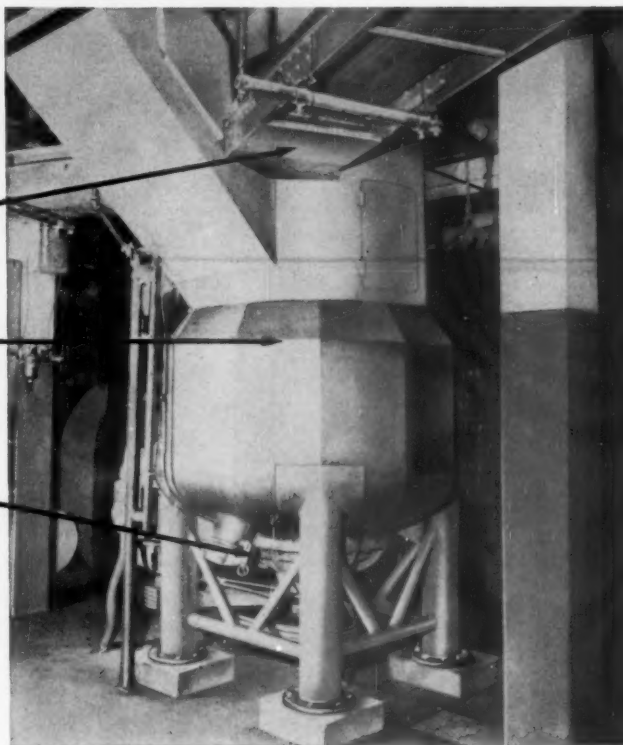
From
Converting Mill . . .

Via Conveyors

To Pulper

To Pump*

To Pulp Mill



With the Impco Solvo® Pulper

The Model 2U Solvo Pulper, playing a dual roll and pump-away demand at a 24 ton/day rate. at Bird & Son, Inc., East Walpole, Massachusetts, This is one of a wide variety of Solvo Pulper has sharply reduced previous material handling applications. Others include de-ink cooking, dry costs. It is operating continuously under automatic end broke handling, paper machine furnish pulp- control as both a material handler and a pulper. ing, transfer of high yield cooked chips to refiners Boxboard broke from the converting machines is as well as the normal pulping of broke, wet delivered by conveyors to the Solvo which simul- strength and waste paper. Units are available for taneously pulps and pumps it to the pulp mill. The any capacity requirement. units' single 50 HP motor handles both pulping

*The pulping element, extractor plate and stock pump are one rotating assembly.



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How to get ACCURATE PRESSURE CONTROL IN SPITE OF DEMAND CHANGES

ask your **FISHER/MAN** about the

WIZARD II

PRESSURE CONTROLLER

with new and improved features



- 1** **VOLUME RELAY** for faster response to pressure changes.
- 2** **RESET FEATURE** for greater stability and pin-point control, adjustable from .005 to 1 minute per repeat.
- 3** **MEASURING ELEMENT** may be brass, steel or stainless steel Bourdon tubes for pressures from 30 to 15,000 psi or Bellows assemblies for pressures below 30 psi and vacuum.



WIZARD I

PRESSURE CONTROLLER



The original Wizard I Pressure Controller is still available for those applications not requiring volume relay or reset features. The simplicity of a self-operated regulator and the accuracy of a pilot or relay operated regulator are found in the Series 4100U. This is, unquestionably, the reason for the continued popularity of the Wizard I series.

As for all Wizards, the Series 4100U is furnished with a universal case which enables the unit to be flush or surface mounted or mounted on yoke of a control valve.

Measuring Elements: Bourdon Tube—Bronze, Steel or St. Steel—Ranges 25 to 7,500 psi. Bronze or St. Steel Bellows for vacuum to 25 psi.

The Wizard II has been designed to specifically meet the demands of modern, complex systems requiring closer and faster control. The Wizard II retains the basic simplicity and dependability of the Wizard 4100U, plus more speed and accuracy.

The new design consists of two sub-assemblies encased in a weather proof die cast aluminum housing which is provided with a 1/4" pipe threaded vent. Either sub-assembly can be removed without disturbing case mounting. The simple but effective proportional band adjustment (2 to 100%) and the reset adjustment (.005 to 1 min/repeat) along with ease of reversing the action of the Wizard II, have contributed much to its popularity in process control work. All Wizard II controllers, with exception of differential models, can be supplied with a process or controlled pressure gauge installed inside the case.

Careful and exhaustive tests and years of field use have conclusively proved that the Wizard II measures up to rigid Fisher standards.

A COMPLETELY DESCRIPTIVE AND ILLUSTRATED BULLETIN ON THE WIZARD II IS YOURS FOR THE ASKING. WRITE FOR BULLETIN No. D-4150B OR BULLETIN D4100 ON WIZARD I.



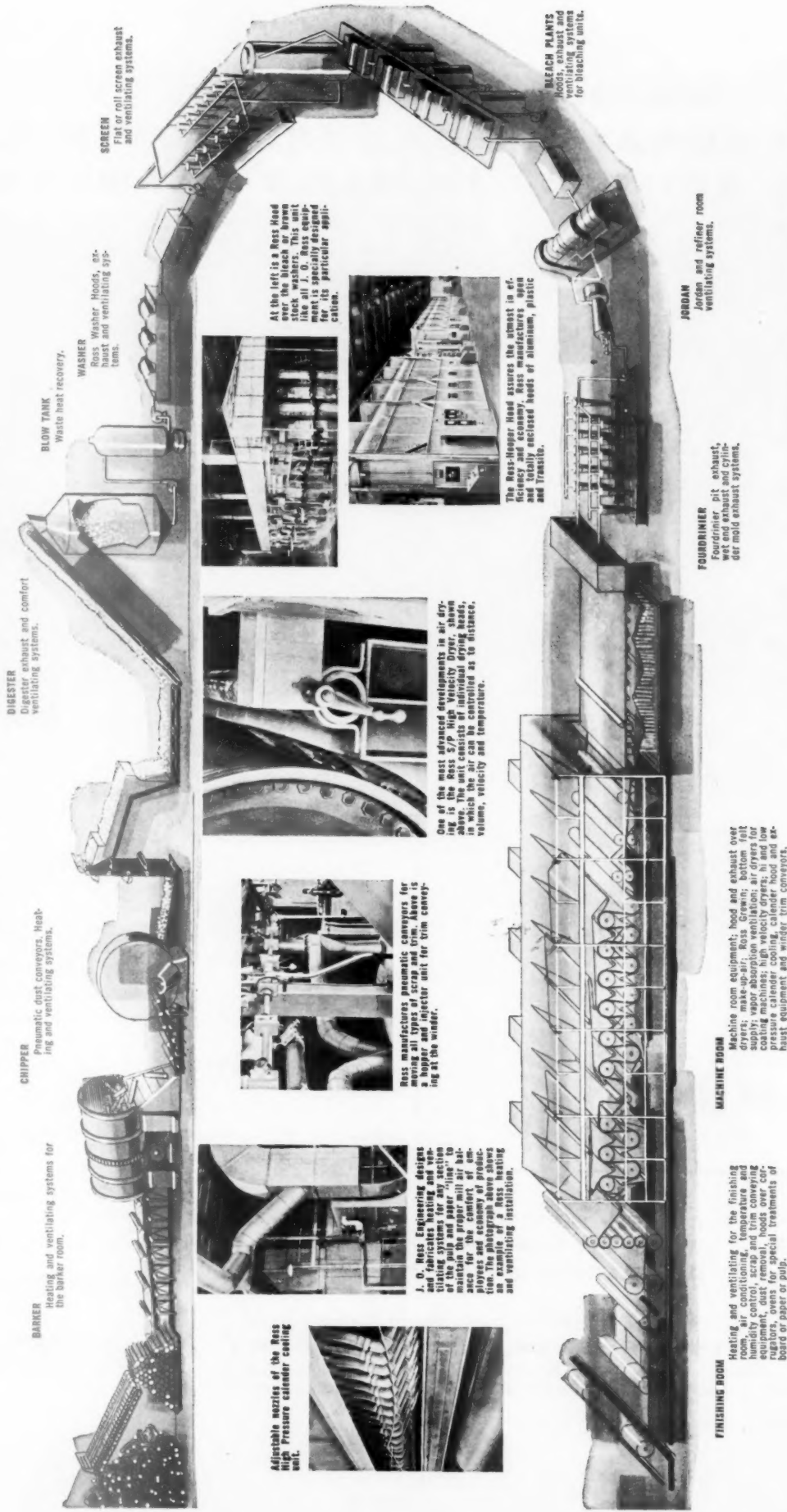
IF IT FLOWS THROUGH PIPE ANYWHERE IN THE WORLD...CHANCES ARE IT'S CONTROLLED BY...
FISHER GOVERNOR COMPANY
Marshalltown, Iowa / Woodstock, Ontario / Rochester, England
BUTTERFLY VALVE DIVISION: CONTINENTAL EQUIP. CO., CORAOPOLIS, PA.



Engineered AIR SYSTEMS for Pulp and Paper Processing

Ross does many things with air. They build equipment to heat it for drying paper, pressurize it for moving chips through a conveyor or dehydrate it to squeeze out moisture. Ross makes equipment for almost every job in the paper making process. And in each of these jobs Ross harnesses the air to the most exacting requirements so that paper is produced

in a manner that is efficient, inexpensive and with maximum comfort for plant personnel. The proper control of air is vital and, since no two paper mills are alike in design, neither are any two air systems similar. Consequently, Ross must specially engineer each air system to the mill that uses it.

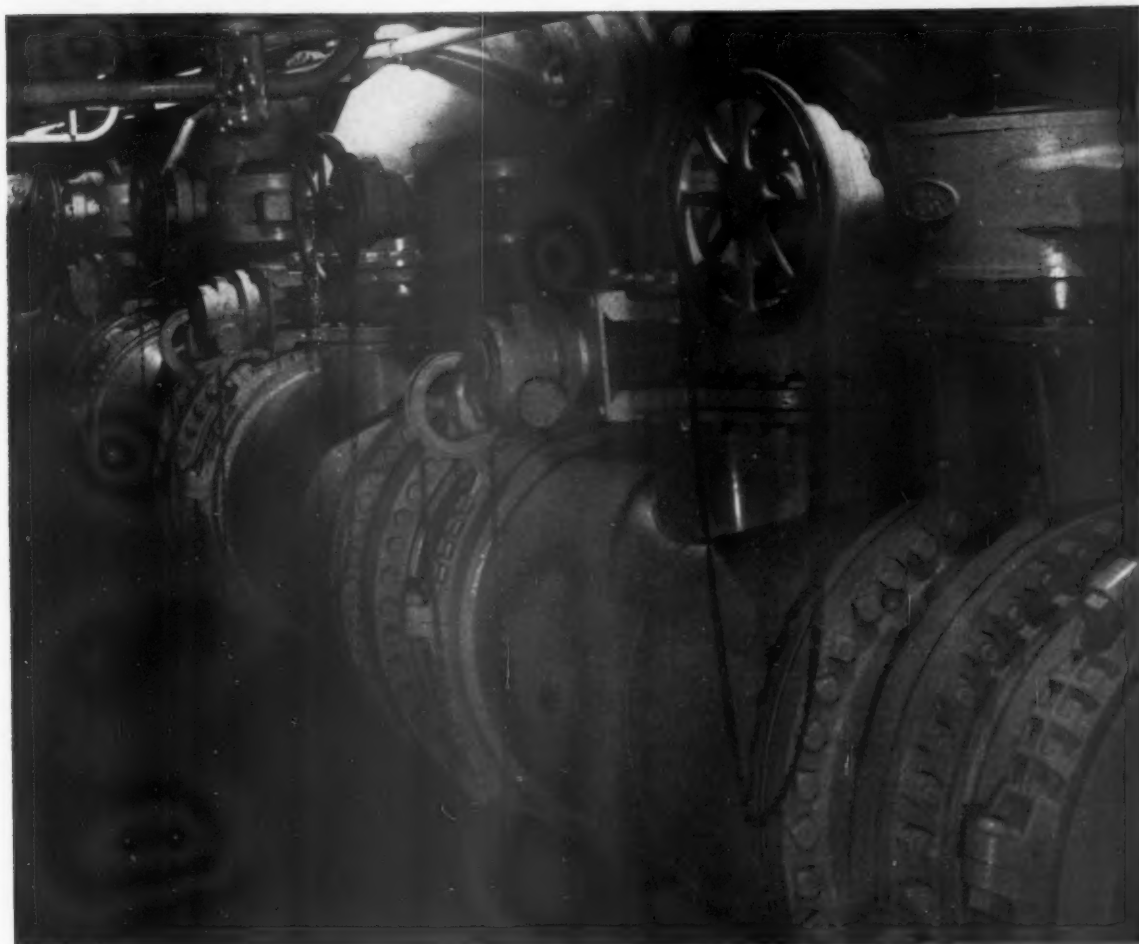


Write today for your copy of Bulletin PP-100



J. O. ROSS ENGINEERING
A Division of Midland-Ross Corporation / 730 Third Ave., New York 17, New York
ATLANTA • BOSTON • DETROIT • LOS ANGELES • SEATTLE • MT. PROSPECT, ILL.

ALLIS-CHALMERS



One of the compact groups of A-C rubber-seated butterfly valves at the pumping station of a southwestern municipality.

The right valve "repeats itself"

66 Allis-Chalmers rubber-seated butterfly valves line up to prove it

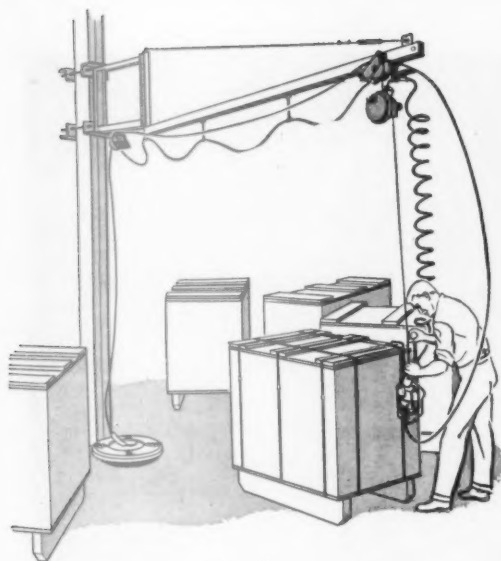
Economical, dependable, easy to operate: Allis-Chalmers rubber-seated butterfly valves give you these and so many more advantages that it's easy to appreciate their universal popularity. Full body protection is provided by a rubber seat which extends through the valve body and over the flange faces. Angle seating protects the rubber seat and permits seating adjustment without costly disassembly.

A-C manufactures a complete line of metal and

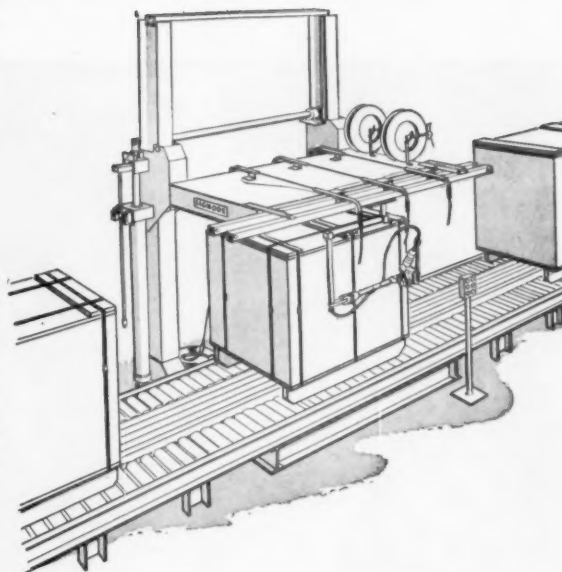
rubber-seated butterfly valves in a wide range of types and sizes in order to provide the best valve for a given application. Compact design joins with light weight to bring other savings in both space and cost of construction.

• • •

For details on butterfly valves, cone valves and ball valves, contact your A-C representative or write Allis-Chalmers, Hydraulic Division, York, Pa. A-1309



Centralized packaging with Signode's complete jib crane set-up.



Centralized compression packaging station with Signode CS20-1 press.

Improve packaging and save money with centralized strapping the Signode way

Many mills, large and small, are already using newly developed Signode methods in combination with one or the other of the two centralized packaging stations shown above to obtain these advantages for themselves and their customers:

- Packaging material savings
- Reduction in paper slippage in transit
- Better moisture content control
- Fewer customer complaints
- Better flow of material through your operation
- Receiver can triple-deck his paper
- More usable sheets per skid of paper
- Paper can be used directly from the skid for high speed offset presses. No restacking.
- Less downtime in customer plants

Signode's specialists in paper packaging are available, at no cost, to help re-arrange product flow, where required. These men are in addition to and work together with our regular field engineering, testing laboratory, and sales representative staffs.

Write for additional information that includes details of the Signode ways that produce better packaging at less cost than older methods.

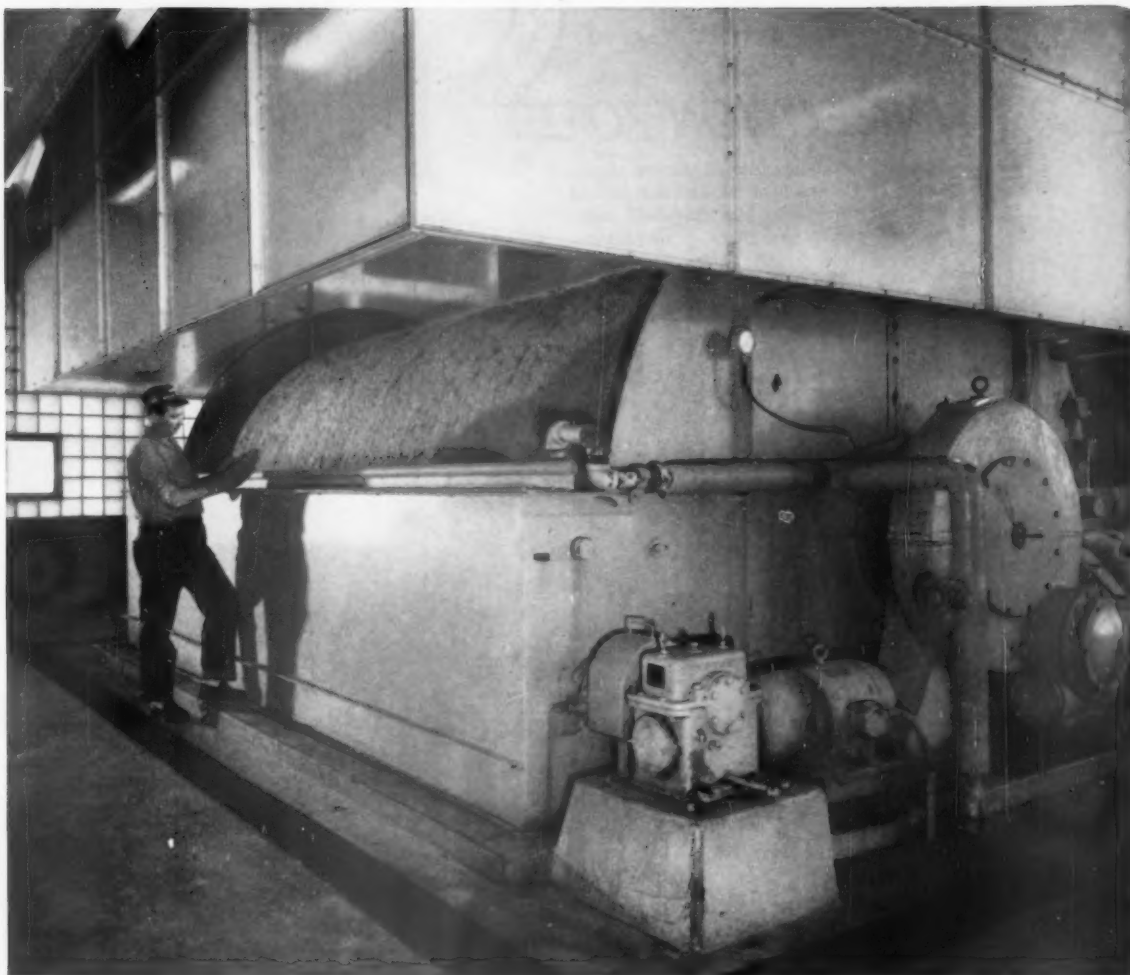


First in steel strapping

SIGNODE STEEL STRAPPING CO.

2672 N. Western Avenue, Chicago 47, Illinois

Offices Coast to Coast. Foreign Subsidiaries and Distributors World-Wide
In Canada: Canadian Steel Strapping Co., Ltd., Montreal • Toronto



Pulp Washers that give a "Shower of Value!"

Essential to the economical production of quality paper, a well-washed pulp with low dilution is mandatory at Thilmany Pulp and Paper Company.

That's why the Kaukauna, Wisconsin papermaker relied on Swenson to provide the washers that furnish clean pulp at the lowest possible dilution. Now, with its line of Swenson 4-drum, 5-stage brown stock washers, Thilmany reports improved performance...and marked reductions in operating costs accompanied by an increase in quality of paper.

Long-time favorites, Swenson Pulp Washers are designed and engineered specifically for brown stock washing. Send for your copy of the interesting new color Bulletin 243, "Processing Profiles"—a tour of Swenson Processing Equipment in action at Thilmany and many other installations.

Swenson Evaporator Company,
15653 Lathrop Avenue, Harvey,
Illinois.



PROVED ENGINEERING FOR THE PROCESS INDUSTRIES SINCE 1889

SWENSON



WHITING—MANUFACTURERS OF CRANES; TRAMBEAM HANDLING SYSTEMS; TRACKMOBILES; FOUNDRY AND RAILROAD EQUIPMENT.

PULP & PAPER — August 1960

Reporting more news from...

CRANE DIRECTION '70



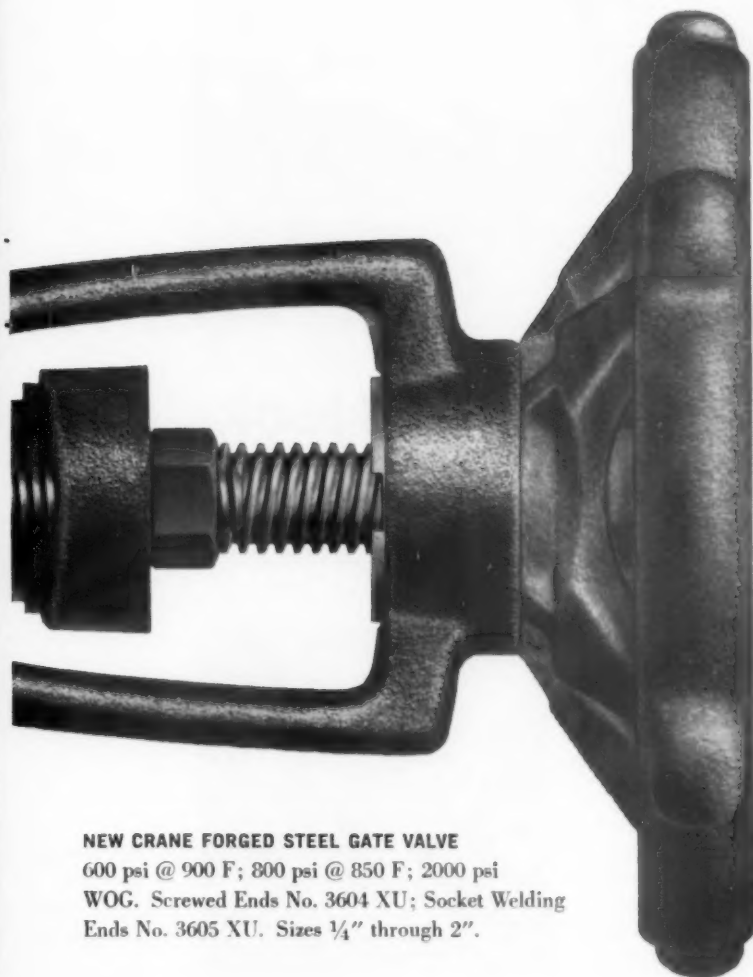
... a fast-moving program of planned expansion, product development, and streamlined distribution to help our customers meet the competitive challenges of the Sixties.

COMPLETELY



REDESIGNED!

THE NEW SMALL FORGED STEEL GATE VALVE



NEW CRANE FORGED STEEL GATE VALVE

600 psi @ 900 F; 800 psi @ 850 F; 2000 psi
WOG. Screwed Ends No. 3604 XU; Socket Welding
Ends No. 3605 XU. Sizes 1/4" through 2".

This is a whole new valve, not just one with a new feature added. This redesign incorporates all the features you told us you wanted plus a few others we know will make this valve a better buy in terms of longer service life, less maintenance, easier and faster servicing.

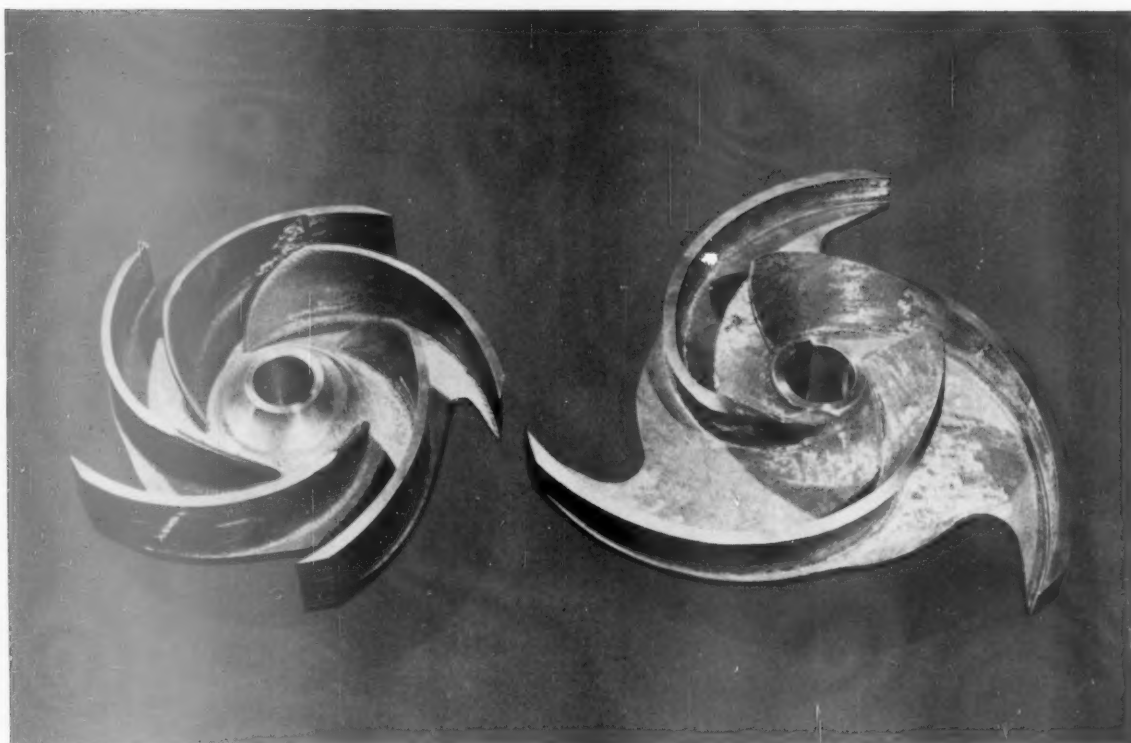
Like the new "bow-leg" yoke, which for the first time gives you plenty of hand room for easy stuffing box maintenance. And like the long-life braided asbestos packing, with Inconel wire insert. The "universal" trim that can be used for either oil or steam, eliminating many of your stocking problems. The spiral wound stainless steel bonnet gasket with asbestos filler, made blowout-proof with a male-female joint.

But what we really want you to remember, more than any single feature, is that this Crane valve is the newest—all new—valve on the market... well worth considering when you need small, high-pressure steel gate valves. We'd like you to compare this new valve with any other comparable valve feature for feature.

Your local Crane distributor has technical literature and a complete selection of these valves right in stock. Call him on small steel gates. In fact, he's your best bet to call no matter what valve you want because he carries the broadest line of quality valves in the world.



CRANE CO., INDUSTRIAL PRODUCTS GROUP
4100 S. KEDZIE AVE. • CHICAGO 22, ILL.
VALVES • ELECTRONIC CONTROLS • PIPING
PLUMBING • HEATING • AIR CONDITIONING



Unretouched photograph

Handling pulp liquor 9 years, and look! No corrosion, erosion, wear


Impellers are cast from 10% Nickel Stainless Steel

These impellers may look foundry-new, but they've spent the last nine years successfully fighting off a three-way attack. From corrosion and erosion by caustic liquors... from wear by suspended solids.

Faced with these conditions, engineers at Mead Corporation's Kingsport Division, Kingsport, Tenn., decided to standardize on impellers cast from ACI type CF-8M stainless steel. This grade contains 19% chromium, 10% Nickel, a maximum of 0.08% carbon, and 2.5% molybdenum. This nickel-containing combination provides an exceptional degree of corrosion resistance and

strength... to stand off the daily onslaughts of white, black and green liquors in this alkali-recovery operation.

Can you use such a combination... of corrosion resistance plus strength and resistance to wear and high-velocity impingement? Nickel Stainless Steels provide combinations of specific chemical and mechanical properties... well-suited to special requirements. Write for the helpful Inco booklet "Heat Resistant Castings, Corrosion Resistant Castings... Their Properties and Applications."

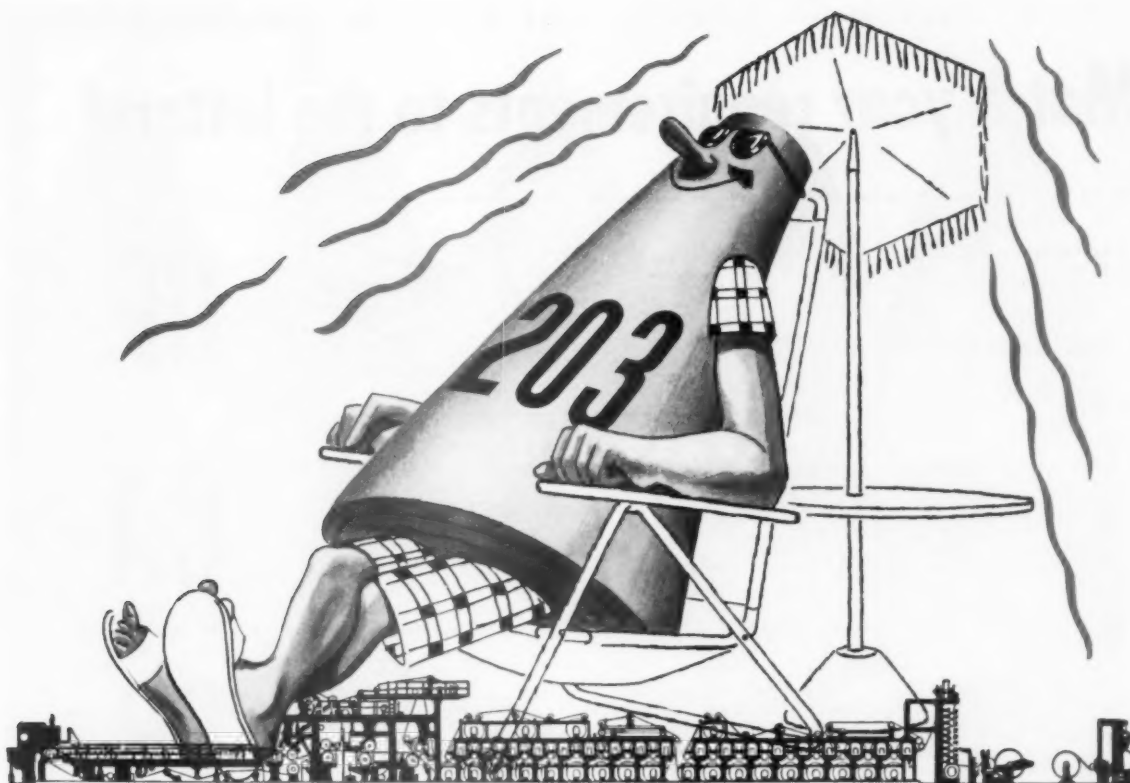
THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street  New York 5, N.Y.



Recovering green liquor without downtime, these pumps are equipped with long-lasting Nickel Stainless Steel impellers. They move hot caustic liquor with specific gravity of 1.16 at 350 gpm, 1755 rpm.

INCO NICKEL

NICKEL MAKES ALLOYS PERFORM BETTER LONGER



DRESSED TO BEAT THE HEAT! WOODBERRY 203

Full Faced Asbestos Dryer Felt

WOODBERRY 203 is a heavy, full-faced asbestos dryer felt... engineered to yield superior drying performance in rugged, hot positions. The heavy cotton body construction gives it great strength while the full asbestos face protects the felt from the deteriorating effects of unusually high temperatures and excessive chemical concentrations. WOODBERRY 203 is ideally suited to the rigorous demands of the board and kraft industry... but it will serve equally well, wherever tougher, heat-resistant clothing is required. It is as economical as it is effective! On a cost per ton basis, WOODBERRY 203 often far surpasses even more costly felts. Sold only pre-stretched and pre-shrunk (with or without clipper seams).

MOUNT VERNON DRYER FELT FAMILY—WOODBERRY 203 is just one of Mount Vernon's full "family" of scientifically engineered dryer felts. In this "family" you will find an individual felt for virtually every paper machine position and every paper-making need.

UNIFORMITY
Makes The Big
Difference In
Industrial
Fabrics



Mount Vernon Mills, inc.

A LEADER IN INDUSTRIAL TEXTILES



SELLING AGENTS

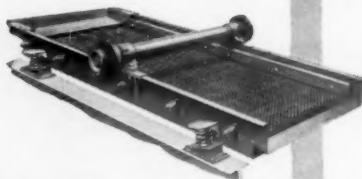
Main Office: 40 Worth Street, New York, N. Y.

Another Mount Vernon Dryer Felt Success Story...

A #1 machine producing kraft liner and board specialties was being operated at higher-than-average speeds and temperatures. The operation proved costly and inefficient because the dryer felts being used were unable to withstand the grueling conditions on certain machine positions. After carefully studying the problem, Mount Vernon technicians recommended WOODBERRY 203, a dryer felt engineered to provide superior drying performance in the hottest positions. Result—WOODBERRY 203 ran for 121 days in marked contrast with the average 90 day life of ordinary felts... thus yielding a dryer felt cost per ton of only \$.039!

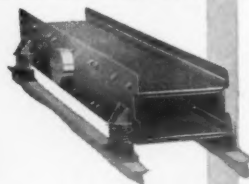
Match your requirements to the letters!

UP VIBRATING SCREEN has a simple, fully accessible unbalanced-weight vibrator. Operating with only two bearings, the unbalanced pulley produces high frequency vibrations whose amplitude can be field-adjusted. These screens are especially useful for screening fine or light materials. They may be floor or suspension mounted and are available in open or totally enclosed types.



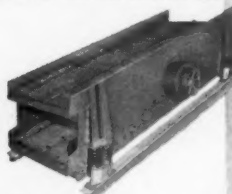
UP

CA VIBRATING SCREEN performs with positive concentric action . . . has a two-bearing, unbalanced-weight vibrator which imparts a smooth, uniform circular motion to all screening surfaces. Designed for medium-duty sizing, scalping, rinsing and dewatering. Numerous mountings may be provided to suit all operating conditions and the versatile design permits field modification of mountings.



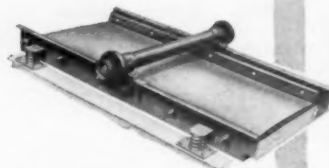
CA

CB VIBRATING SCREEN is used for high-tonnage sizing and scalping of medium and large materials. This rugged circular motion screen has a two-bearing, unbalanced-weight vibrator. Vibrator shaft and cartridge-mounted, self-aligning roller bearings are enclosed in a tubular steel housing, well protected from dust, dirt and abrasion by frictional finger and labyrinth seals.



CB

NRM LIQUID VIBRATING SCREEN easily accomplishes efficient and economical dewatering and extraction of solids from liquids. Two-bearing, adjustable, unbalanced weight vibrator produces a high-energy vibration permitting the use of fine screen cloth with minimum blinding or clogging and maximum liquid-passing capacity. Screen motion is quickly and easily adjusted for the most efficient separation.



NRM

CM VIBRATING SCREEN. This horizontal-type, straightline motion screen is designed for high-volume sizing, washing and dewatering. It employs the new Synchronomatic vibrator which produces high intensity motion with independently driven vibrator shafts. Reduces downtime and maintenance. Because of its low-slung profile, this screen is ideal for installations where head-room is limited. It is available with single or double decks.



CM

LINK-BELT has vibrating screens for every capacity, every material

Speed, positive separation, low maintenance—you get all three with Link-Belt vibrating screens. And Link-Belt has a type and size for every need . . . will analyze your requirements and make recommendations based on long experience, thorough engineering knowledge. For complete details, send for Book 2777. Address Link-Belt Company, Prudential Plaza, Chicago 1.

LINK-BELT



VIBRATING SCREENS

15-401
LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1.
To Serve Industry There Are Link-Belt Plants, Warehouses, District
Sales Offices and Stock Carrying Distributors in All Principal Cities.
Export Office, New York 7; Australia, Marrickville (Sydney); Brazil,
Sao Paulo; Canada, Scarboro (Toronto 13); South Africa, Springs.
Representatives Throughout the World.

Performance makes the world of difference



Fig. 1893—Large Alloy Cast Iron Paper Mill Service Gate Valve for 200 W.O.G. Body and bonnet are 3% nickel iron; stem and seat rings are Type 316 stainless steel; solid wedge disc is Ni-resist.

Fig. 2192—Large Ni-resist Swing Check Valve for 200 W.O.G. Bolted flanged cap. Stainless steel (Type 316) seat, disc, hinge, pin and lock nut.

Fig. 2195—Small Ni-resist O.S.&Y. Gate Valve for 200 W.O.G. Wedge disc, seat and stem are Type 316 stainless steel.

For their resistance to corrosion, erosion, heat and wear, Powell Ni-resist* and 3% Nickel Iron Valves are especially made and recommended for pulp and paper mill service. Also—valves are available in Stainless Steel, Nickel, Monel Metal†, Hastelloy+ Alloys, Aluminum, etc., to control the

flow of acids, alkalies, organic solvents and gases.

So if you have a flow control problem, Powell has the right valve to solve it. For complete information and literature, contact your Powell Valve distributor (there's one in all major cities) or write directly to us.

*Registered trade names of The International Nickel Company. †Registered trade names of Haynes Stellite Company

Powell . . . world's largest family of valves

THE WM. POWELL COMPANY • DEPENDABLE VALVES SINCE 1846 • CINCINNATI 22, OHIO



ACCENT
on Close-Tolerance
Production

NAYLOR FABRICATIONS *in Carbon Steel, Alloys or Stainless Steel*

NAYLOR Fabrication Service is geared for accurate production of paper mill pipe, fittings and special fabrications to your most exacting specifications... from carbon steel, alloys or stainless steel.

Pipe sizes range from 4" to 30" in

diameter and wall thickness from 14 to 8 gauge. Special piping fabrications from 3" to 44" in diameter and wall thickness up to $\frac{3}{8}$ ". Standard fittings are available from stock.

Write for Bulletin No. 59 or send specifications for quotation.



1271 East 92nd Street, Chicago 19, Illinois

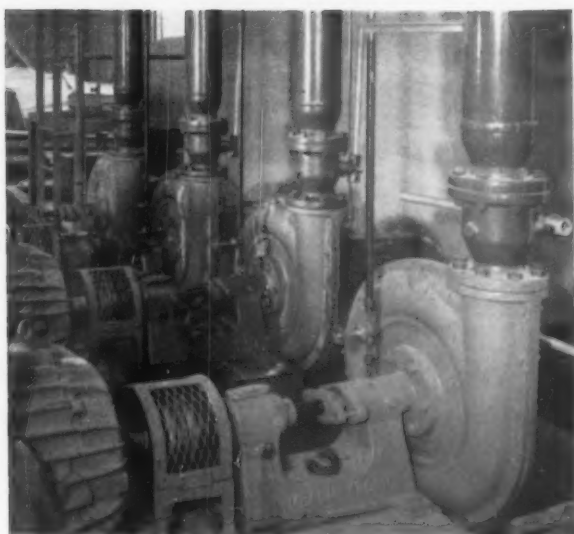
Eastern U. S. and Foreign Sales Office: 60 East 42nd Street, New York 17, N. Y.

Jamesbury



"Double-Seal" BALL VALVES

Most VERSATILE Valve In The Mill!



Jamesbury installation at Mead Corporation Chillicothe Plant

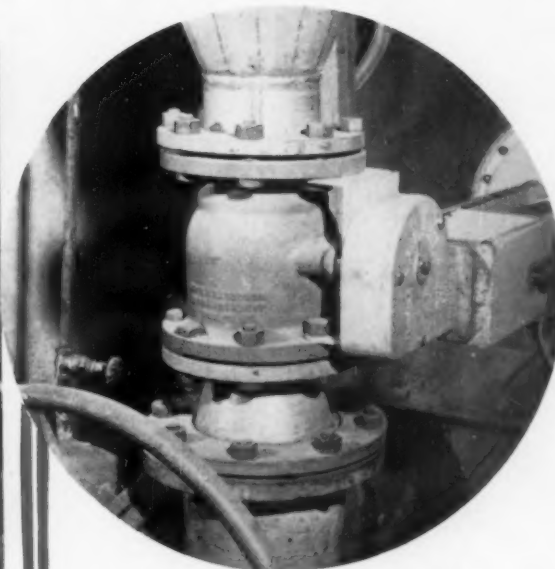
As varied as the valving requirements are in pulp and paper processing, the Jamesbury "Double-Seal" Ball Valve is meeting them successfully. Jamesbury offers a functional, efficient, economical Ball Valve which has proved itself in performance in many major installations such as the examples shown above.

Jamesbury Ball Valve Versatility Is Proving Itself In These and Other Services

Spent Acid Lines • Sodium Dioxide • Calcium Hypochlorite
CO₂ • Sampling Lines • Stock Lines • Bleach Lines • Liquor Lines
H₂SO₄ • Black Liquor Recovery Service • Kraft Mill Digester
Service • Chlorinated Stock Service • Brown Water SO₂ Service
Instrumentation Lines • White Water • Water & Pulp Grinder
Water in Filtration Plant • Digester Gas-Off • Digester Blow
Service • Vacuum Service • Power Boiler • Gas Service
General Caustic Service • Alum Lines • White Liquor Fill Vortrap
Drain • General Air Service • Kaolin Clay Service • Paper Filler
Service • Glue & Paste Service • Pilot Laboratory • Demineralizer
Coating • Color Rooms • Paper Machine Showers • Hydrogen
Peroxide • Rapid Cycle Digester Service • Hydrogen Gas
Service • Boiler Water Treatment System • Ash Elimination
Dry Chlorine Service • Starch System.

227-0

PULP & PAPER — August 1960



Jamesbury installation at Weyerhaeuser Longview Plant

GREATEST RANGE OF BALL VALVE SIZES AND MATERIALS AVAILABLE.

Jamesbury "Double-Seal" Ball Valves are available in Types 303, 316 and Alloy 20 Stainless Steels, Carbon Steel, Bronze, Ductile Iron, Aluminum and PVC. Other materials on special order.

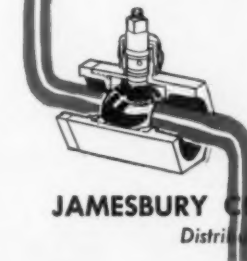
Interchangeable seats and seals are available in "Teflon", Nylon, Buna-N, Neoprene, Hypalon and natural rubbers. Pneumatic, Hydraulic and Electric Motor Operators to fit Remote Control Requirements.

SIZES

| | |
|-------------|----------------------|
| Screwed End | 1/4" through 3" |
| Flanged | 1/2" through 10" |
| | 150# and 300# series |

Send for Jamesbury's
Pulp and Paper Brochure.

JAMESBURY CORP. NEW STREET, WORCESTER, MASS.
Distributors in Principal Cities



HOW YARWAY BLOW-VALVES REDUCE DIGESTER OPERATING COSTS

Faster blow

Valve by valve comparisons show Yarway Seatless have up to 100% greater discharge area than some other digester blow valves of the same nominal pipe size. Result—faster discharge, lower pressure drop.

Cleaner blow

Steam purging is unnecessary since Yarway's seatless hollow-sliding-plunger design eliminates all pockets where wood chips or tramp metal can hang up.

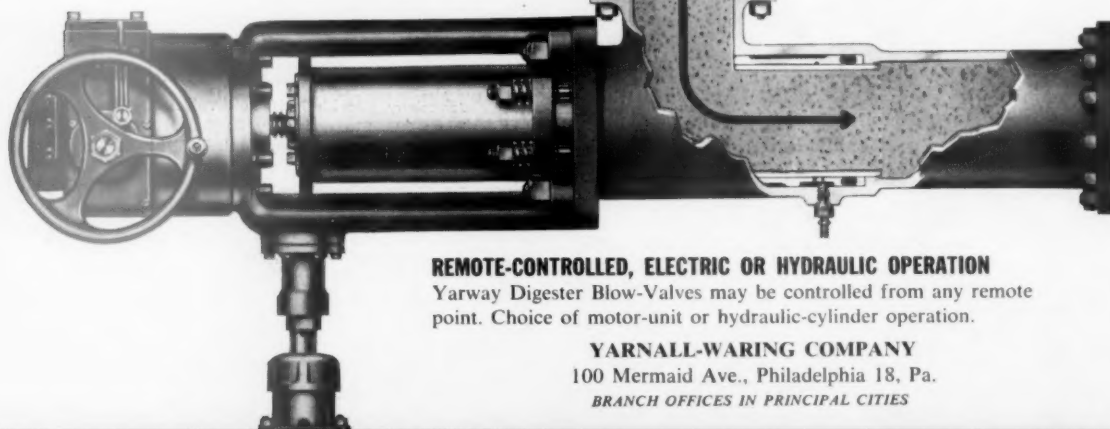
Tighter seal

Yarway's tight seal (spring-loaded packing rings above and below inlet port) prevents loss of cooking liquor and insures thorough cooking of pulp.

It all adds up to reduced blowing time,
more cooks per day, greater output of pulp—
LOWER DIGESTER OPERATING COSTS.

Send for free bulletin on the selection, operation and maintenance of digester blow-valves.

Yarway Blow-Valve in open position.
Note full, free discharge.



REMOTE-CONTROLLED, ELECTRIC OR HYDRAULIC OPERATION

Yarway Digester Blow-Valves may be controlled from any remote point. Choice of motor-unit or hydraulic-cylinder operation.

YARNALL-WARING COMPANY

100 Mermaid Ave., Philadelphia 18, Pa.
BRANCH OFFICES IN PRINCIPAL CITIES

YARWAY DIGESTER BLOW-VALVES



deep ... deeper ...
deepest blacks!

COLD WATER SOLUBLE ERIE BLACK GPNF

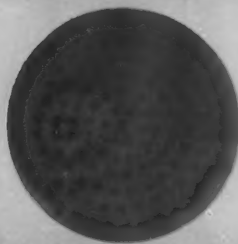
Outstanding solubility of this improved direct black is your key to cleaner, lower-cost dyeings.

Because of its extra efficiency, dye yields are materially increased. Rich, deep blacks are produced without bronzing. Specking is eliminated in lighter shades. Formulations dye on shade, time after time.

Another advantage: Erie Black GPNF is non-foaming... doesn't cause bubbles on the screen, eliminates consequent pinholing.

This exceptional product is another in the range of "new" National® Paper Dyes designed to give you modern dyestuffs engineered for continuous dyeing, dry application and other new money-saving dyeing techniques. Our representative will gladly discuss our quality improvement program with you.

Samples of Erie Black GPNF on request



To demonstrate comparative solubilities, 75 mg. each of Erie Black GPNF and a competitive type were dissolved in 50 ml. of cold water and filtered. Clogged filter paper (left) is typical of most competitive dyes. None filters as cleanly as cold-water soluble, non-foaming Erie Black GPNF (right).

NATIONAL ANILINE DIVISION

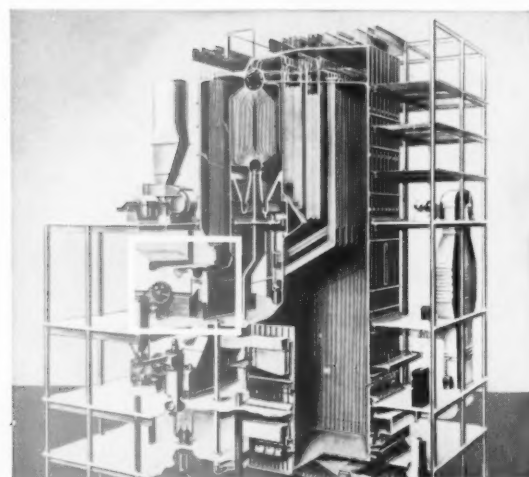
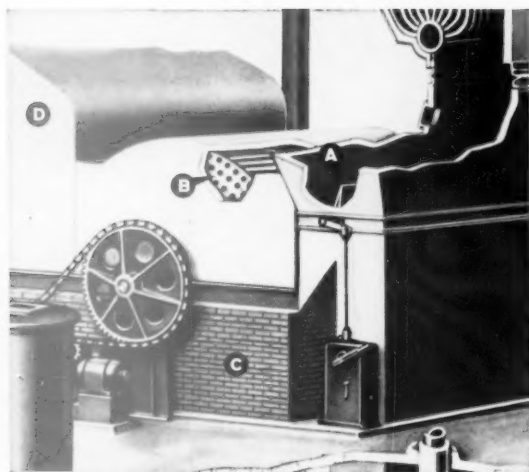
40 RECTOR STREET, NEW YORK 6, N. Y.

Atlanta Boston Charlotte Chicago Greensboro Los Angeles
Philadelphia Portland, Ore. Providence San Francisco
In Canada: ALLIED CHEMICAL CANADA, LTD., 100 North Queen St., Toronto 18

Distributors throughout the world. For information:

ALLIED CHEMICAL INTERNATIONAL • 40 Rector St., New York 6, N. Y.

Allied
Chemical



Cutaway view of a large C-E Chemical Recovery Unit (lower left) equipped with dual Cascade Evaporators. In the evaporation process (upper left), flue gases, after passing through economizer, are divided by damper (A) between upper and lower Cascades. Cylindrical tube bundle (B) with sealed tube ends rotates slowly in a bath of hot liquor (C). Hot gases passing over the wetted tubes pick up moisture and leave the Cascade at duct (D). The amount of economizer surface contacting the flue gases is varied automatically — adjusting temperature and evaporation rate.

Why CASCADE Evaporators?

When coupled with an electrostatic precipitator, the C-E Cascade Evaporator affords the utmost in dependable, low-cost chemical collection and liquor concentration. For example . . .

Automatic controls provide exceptional flexibility of operation. With these controls, furnace stability is easily maintained at a high level, even though the density of liquor entering the evaporator may vary widely. And — because the Cascade Evaporator is mechanically simple and efficient — it performs with a minimum of power consumption and personal attention.

Why settle for less when you specify evapora-

tors? The C-E Cascade Evaporator is your most *practical* liquor-concentrating method in the long run. The unit is standard in C-E chemical recovery installations and is recommended for new and existing systems of all makes. Write or call the Paper Mill Division in New York for particulars.

**COMBUSTION
ENGINEERING**



Combustion Engineering Building
200 Madison Avenue, New York 16, N. Y.
CANADA: Combustion Engineering-Superheater Ltd.

ALL TYPES OF STEAM GENERATING, FUEL BURNING AND RELATED EQUIPMENT; NUCLEAR REACTORS; PAPER MILL EQUIPMENT; PULVERIZERS; FLASH DRYING SYSTEMS; PRESSURE VESSELS; SOIL PIPE

BLACK-CLAWSON

Project file:
The Vokes Rotor

PLAN

104
134
310
92
30
3
24
120
8

*Released
by Research
J.B.*



THE VOKES ROTOR

outperforms a standard Hydrapulper® 2 to 1... pulps and defibers to 100% SDS*

(See other side of page)

*Shartle Defibering Standards

FIRST CLASS
PERMIT NO. 51
SEC. 34.9 P.L.&R.
MIDDLETOWN, OHIO

BUSINESS REPLY CARD

No Postage Stamp Necessary if Mailed in United States

—POSTAGE WILL BE PAID BY—

THE BLACK-CLAWSON COMPANY

SHARTLE DIVISION

MIDDLETOWN, OHIO

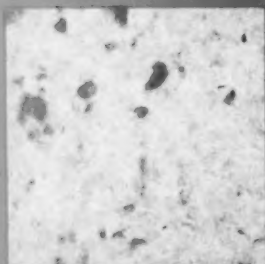


Typical Performance ... Highly sized Kraft Clippings

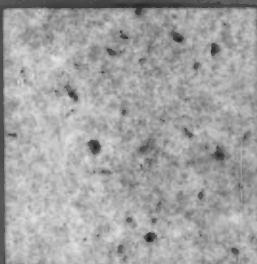
Type of Rotor used
in Hydrapulper

Vokes
Rotor

20



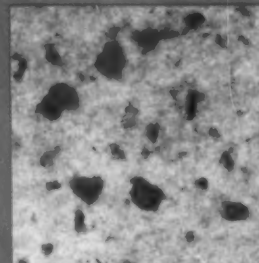
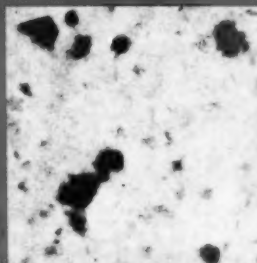
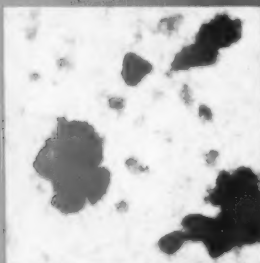
40



60



Standard
Rotor



THE VOKES ROTOR*

THE BLACK-CLAWSON COMPANY
SHARTLE DIVISION, MIDDLETOWN, OHIO

Please send me Bulletin 27-SB and other data on the Vokes Rotor

Name _____

Title _____

Company _____

Address _____

City _____ State _____

gives top performance in

- Power Economy
- Submergence
- Blending and Mixing

Unsurpassed for

Broke, bale and bulk furnishes,
Split rolls, slab and sheet trim
Wet strength and separation of wood fibers
from various poly-coatings.

Offered as conversion unit for existing Hydrapulpers and
as standard equipment on new Hydrapulpers

Want greater defibering efficiency? Send for a copy of Bulletin
27-SB "The Vokes Rotor."

GET THE FULL STORY.

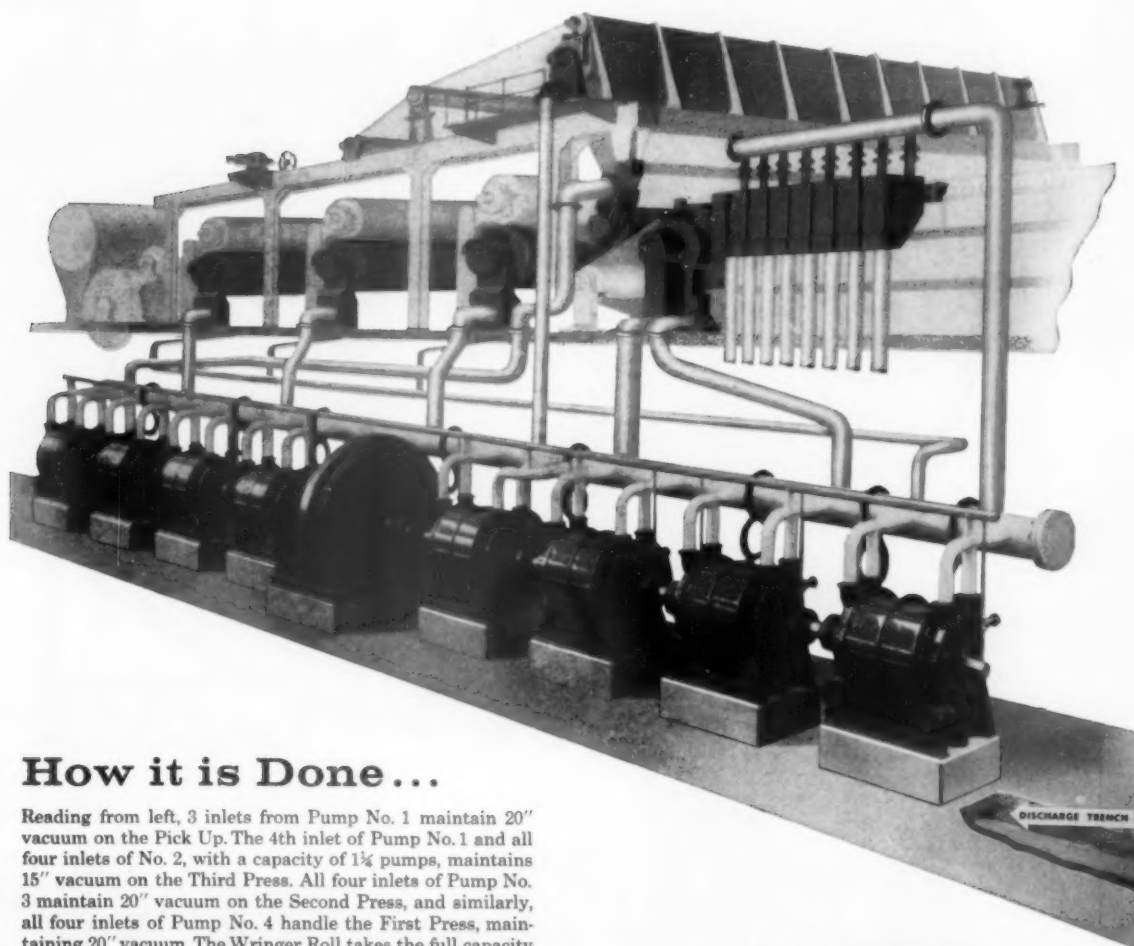
MAIL THIS CARD TODAY!

NOW-

Nash Vacuum Pumps of one size, driven if desired, by a single motor, will handle all of the varied vacuum and capacity requirements of an entire Paper Machine.

Designed by Nash especially for Paper Mill service, the new 5308 vacuum pump has four separate suction inlets, each of which functions independently of the others. This offers the machine operator great flexibility, since these may be used in any desired combination to produce the variety of capac-

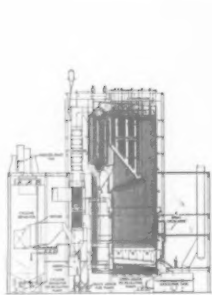
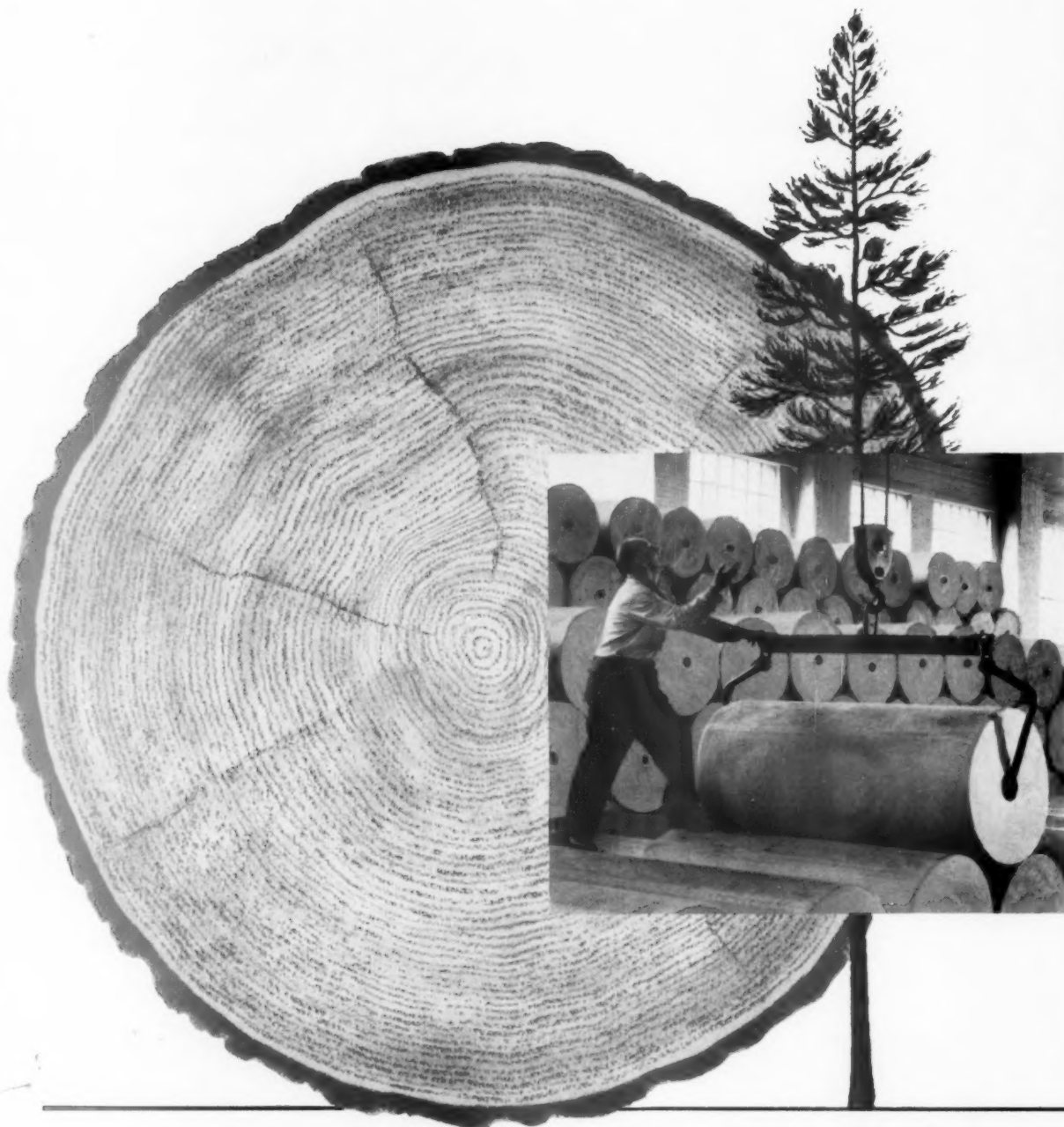
ities and vacuums required by the various functions of a paper machine. These may be varied at will. Great simplicity of operation, and economy of maintenance results. The enclosed discharge trench makes possible a comparatively silent installation and permits easy and economical water recovery.



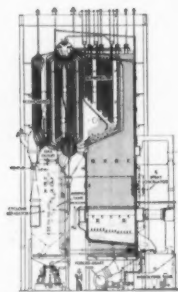
How it is Done...

Reading from left, 3 inlets from Pump No. 1 maintain 20" vacuum on the Pick Up. The 4th inlet of Pump No. 1 and all four inlets of No. 2, with a capacity of $1\frac{1}{2}$ pumps, maintains 15" vacuum on the Third Press. All four inlets of Pump No. 3 maintain 20" vacuum on the Second Press, and similarly, all four inlets of Pump No. 4 handle the First Press, maintaining 20" vacuum. The Wringer Roll takes the full capacity of Pump No. 5, requiring 10" vacuum. The High Vacuum Couch Box takes a pump and a half, 4 inlets of Pump No. 6, and two inlets of Pump No. 7, maintaining 20" vacuum. The remaining two inlets of Pump No. 7 maintain 10" vacuum on the Low Vacuum Couch Box. Only one inlet of Pump No. 8 is required to handle the Felt Conditioners at 10" and the remaining three inlets of Pump No. 8 handily maintain 10" vacuum on the Wire Boxes.

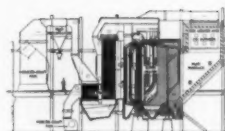
NASH
ENGINEERING COMPANY
South Norwalk, Connecticut



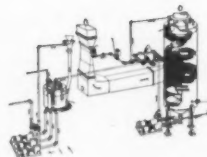
Kraft Recovery Boiler



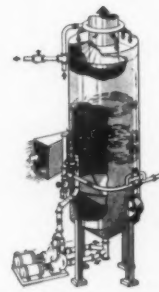
Neutral Sulfite
Recovery Boiler



Magnesium Bisulfite
Recovery Boiler



Venturi
Evaporator-Scrubber

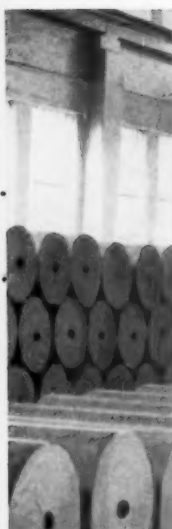


Cyclone Evaporator

PROCESS

BABCOCK & WILCOX EQUIPMENT FOR THE PULP AND PAPER INDUSTRY

FOR CHEMICAL RECOVERY • PROCESS STEAM • POWER



Through constant research and engineering, B&W offers pulp and paper manufacturers equipment and systems adopting the latest operating practices and production advancements.

Recovery units for the Kraft process are now operating at higher pressures and temperatures to more economically meet the pulp and paper mills' expanding electric power requirements.

MgO recovery* is opening new areas of economical sulfite pulp production with recovery of both heat and chemical values from magnesium bisulfite waste liquors.

The recently introduced Magnefite pulping process* permits use of a wide variety of wood species and offers lower mill first-costs, and lower pulp production costs.

Power boilers operate at a wide range of steam pressures and temperatures for improved performance in generation of electricity, and for process steam.

These are some of the more recent developments in the complete range of B&W equipment and processes that are the result of B&W's close relationship with the industry and its needs. Call in the B&W man at your next stage of mill development planning. He'll talk B&W equipment in your language. The Babcock & Wilcox Company, Boiler Division, Barberton, Ohio.

*Exclusively available from The Babcock & Wilcox Company.

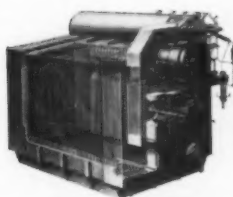


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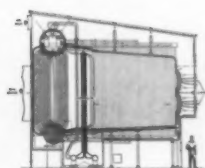
B&W

THE BABCOCK & WILCOX COMPANY

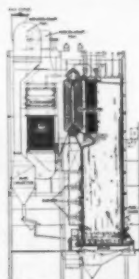
BOILER DIVISION



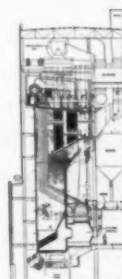
Type FM Package
Power Boiler



PFI 400,000 lb/hr
Power Boiler



2-Drum Bark
Burning Boiler



Radiant Boiler
with Cyclone Furnace

POWER

A SKILLED HAND IN CHEMISTRY...AT WORK FOR YOU

NOPCOSANT[®]

...for pitch dispersing

...for slime control

...for size stabilizing

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...for uniform dyeing



You will find it worth your while to get all the facts about Nopcosant—Nopco's newly improved dispersant and solubilizer. Ask your Nopco representative or write for complete information. Remember, too, back of every chemical made by Nopco for the paper industry stands Nopco Technical Service—an experienced staff ready to assist with laboratory data and recommendations based upon your specific requirements.

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60 Park Place • Newark, N.J.

NOPCO[®]

Plants:

Harrison, N.J. • Richmond, Calif. • Cedartown, Ga. • London, Canada

Properties of NOPCOSANT

A fine powder of uniform particle size

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Dusts less than any other similar product

★

Lightest colored product of its type

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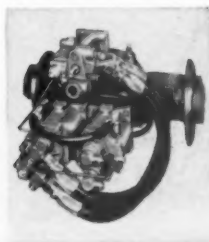
One of the most rapidly dissolving products available

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Most nearly natural pH in its chemical class

PLANNED MASS-HANDLING

your immediate attack against rising costs



IT'S A FACT: The unique Towmotor Towmostatic Drive guarantees handling flexibility, smooth operation and maintenance benefits far greater than any other fork truck drive.

YOU LOWER COSTS IMMEDIATELY when you use Towmotor lift trucks equipped with the versatile revolving roll clamp pictured above. Through planned mass-handling, they put the right products in the right place at the right time . . . and increase profits by moving more paper faster. Write for material handling case studies that give you practical recommendations for improving handling methods in your mill. TOWMOTOR CORPORATION, CLEVELAND 10, OHIO.

FORK LIFT TRUCKS, CARRIERS AND TRACTORS SINCE 1919

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Gerlinger Carrier Co. is a subsidiary of Towmotor Corporation

TIMBER SUPPLY IN THE SEABOARD SOUTHEAST

Despite the extraordinary growth of the pulp and paper industry in the past two decades, present indications point to the necessity for further increased capacity in the near future.

Nowhere are the fundamentals more favorable for this expansion than the Seaboard Southeast, where timber is being grown faster than it is being used.

In the six states of Virginia, North Carolina, South Carolina, Georgia, Alabama and Florida, more than 113,000,000 acres, or 60% of the total land area, are in growing forests, insuring a continuous supply of low-cost pulpwood. Numerous streams afford an abundance of water for pulp and paper operations.

FREE SITE INFORMATION

When you are in the market for a pulp and paper location, converter plant, or distribution facility, let us submit details on some of the excellent sites which we have catalogued in this area.

Address: Warren T. White
Assistant Vice President
Seaboard Air Line Railroad Company
Richmond 13, Virginia





THESE PRIME RESOURCES

B.C. Forest Service Photo

PROMISE HIGH QUALITY BLEACHED PAPER PULP IN 1961

Early in 1961, a new high quality market pulp mill will go on stream near Castlegar, British Columbia, at the foot of the Arrow Lakes region of the Columbia River. Celgar Limited will utilize almost 900,000 acres of prime northern-type forest lands held under a Tree Farm Licence in perpetuity.

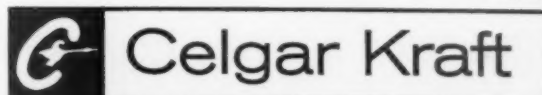
All the resources necessary for efficient mill operation are available — wood to meet any future demand, plentiful water from the clear Columbia, power and gas, transportation

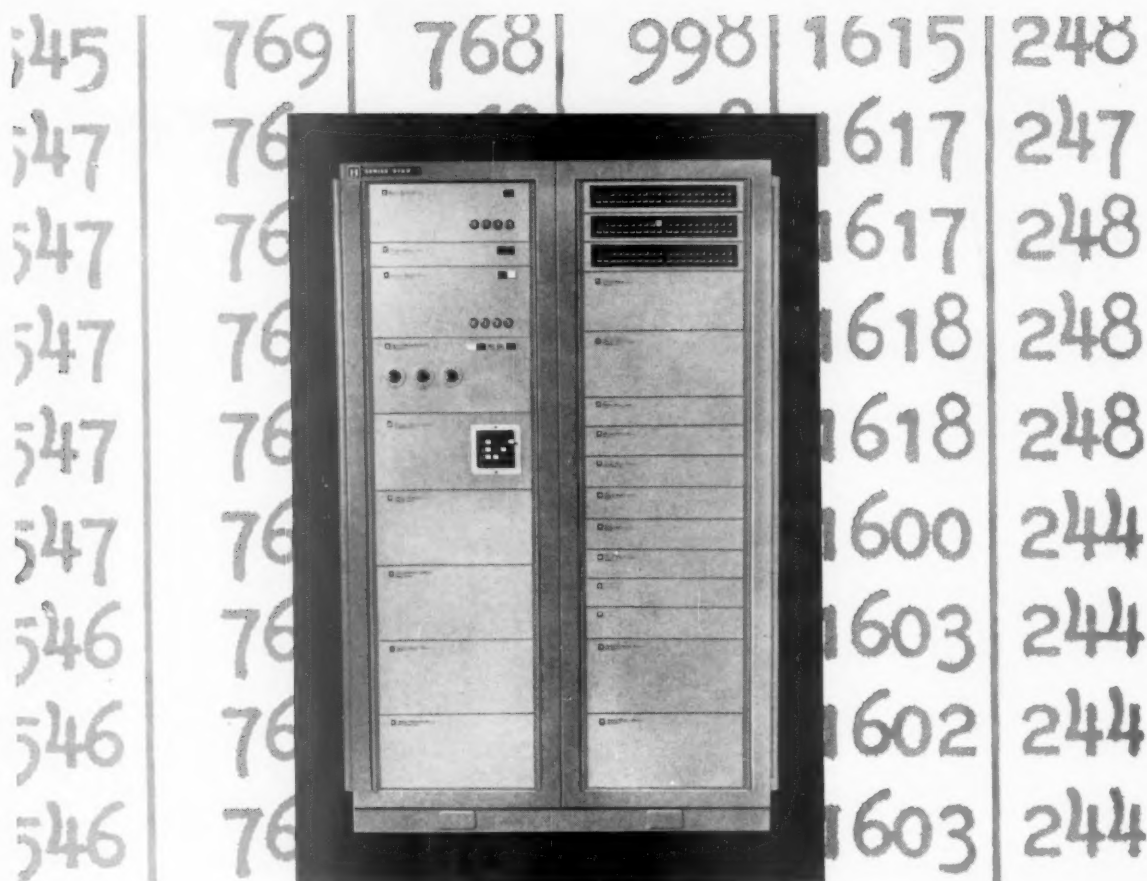
from the mill site to markets, and trained people from established industrial communities in the area.

Celgar Kraft will combine many of the best qualities of Northern and Western pulps to produce a product with an exceptional balance of properties. The long, tough fibres from high-density softwoods develop high bursting strengths coupled with outstanding tear resistance over a wide range of freeness, and in a variety of stock preparation equipment.

COLUMBIA PULP SALES LIMITED has been formed to distribute Celgar Kraft pulps and Columbia Cellulose sulphite pulps. Offices are located at:
1030 West Georgia St., Vancouver 5, B.C.
1600 Dorchester St. West, Montreal 25, P.Q.

V4247-1





The Series 3120 cubicle occupies less than nine square feet of floor space and normally requires no special air conditioning.

USE THIS ALL-PURPOSE LOGGER-SCANNER AS THE "WATCHDOG" OF YOUR ENTIRE PROCESS

The Honeywell Series 3120 logger-scanner can keep your pulp and paper processes under constant surveillance, give you a wealth of highly accurate, up-to-the-minute, process data, and notify your operators when something goes wrong.

The logger receives electrical signals representing temperature, pressure, flow and other variables from primary sensing devices located throughout the mill. These signals are converted into immediately usable data on a typewritten log sheet. Readings are made directly in terms of degrees, pounds, cubic feet per hour, etc.—no computations are required. The unit can log up to 120 points, with accuracy of $\pm 0.1\%$ of reading.

The scanner monitors seven points per second. When it detects an off-normal point, it sounds an alarm, lights a point-identification light, and prints

the time, point number, and off-normal value on a separate alarm record.

With the Honeywell logger-scanner, you get complete process data while it is still meaningful, so that all variables can be easily correlated for best possible process performance. Get complete details from your nearby Honeywell field engineer. Call him today . . . he's as near as your phone.

MINNEAPOLIS-HONEYWELL, Wayne and Windrim Aves., Philadelphia 44, Pa.—In Canada, Honeywell Controls, Ltd., Toronto 17, Ontario.

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YEAR
PIONEERING THE FUTURE

Honeywell



First in Control

SINCE 1885

August 1960 — PULP & PAPER

Do you coat
paper or board?

ESKAR waxes
may help you do it
better at lower cost

There are four ESKAR Waxes you will want to investigate if you use wax in your operations. Each one of these waxes has excellent stability, high strength and good odor. Here is the lineup: ESKAR R-50—For special high blocking point, high gloss coatings. Frequently may be substituted for part of micro in blends. ESKAR R-40—For liners and overwraps where sealing strength is important. ESKAR R-35—For saturation waxing and carton applications. ESKAR R-25—For dry waxing, as a process ingredient and for miscellaneous uses.

Get more information on ESKAR Waxes plus technical assistance from wax specialists. Just call the Standard Oil office near you in any of the 15 Midwest or Rocky Mountain states. Or write Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago 80, Illinois.

You expect more from



and you get it!





This mark tells you
a product is made of
modern, dependable Steel.





Specify **USS** Stainless Steel . . . It is strong, reliable and clean

Stainless Steel has an excellent record in the pulp and paper industry. It meets the requirements. It has strength where it counts; it has long-term reliability; it is easy to clean.

Take the suction boxes on the left for example. They help remove moisture from the pulp. This mass can include chlorites, chlorates, sulfites or sulfates. Stainless Steel can handle these compounds without trouble. This explains why the industry specifies Stainless Steel and why Beloit Iron Works uses it for strong, reliable suction boxes that are easy to wash clean.

This is solid Stainless Steel. It will not chip or peel. No danger of contaminating the moving pulp. Its durability in this service makes it one of the best investments in industry today. Specify Stainless Steel where you want the steady performance that means steady production.

USS is a registered trademark.



United States Steel Corporation—Pittsburgh
American Steel & Wire—Cleveland
Columbia-Geneva Steel—San Francisco
National Tube—Pittsburgh
Tennessee Coal & Iron—Fairfield, Alabama
United States Steel Supply—Steel Service Centers
United States Steel Export Company
United States Steel

WONDERWHITE 

HIGH BRIGHTNESS


WITHOUT THE LOSS OF

OPACITY 

$GBS + ClO_2$
 $+ R \& D =$
WONDERWHITE

Now, at last, a papermaker's dream come true...

There are a number of pulps which offer high brightness... There are others which offer high opacity.

But now Gaspesia is producing WONDERWHITE: a pulp which features *high brightness and high opacity*.

Gaspesia, with its Northern Spruce, has always been known for high opacity pulp. Now, by using Chlorine Dioxide, the highest level of brightness has been achieved—with *no loss in opacity*.

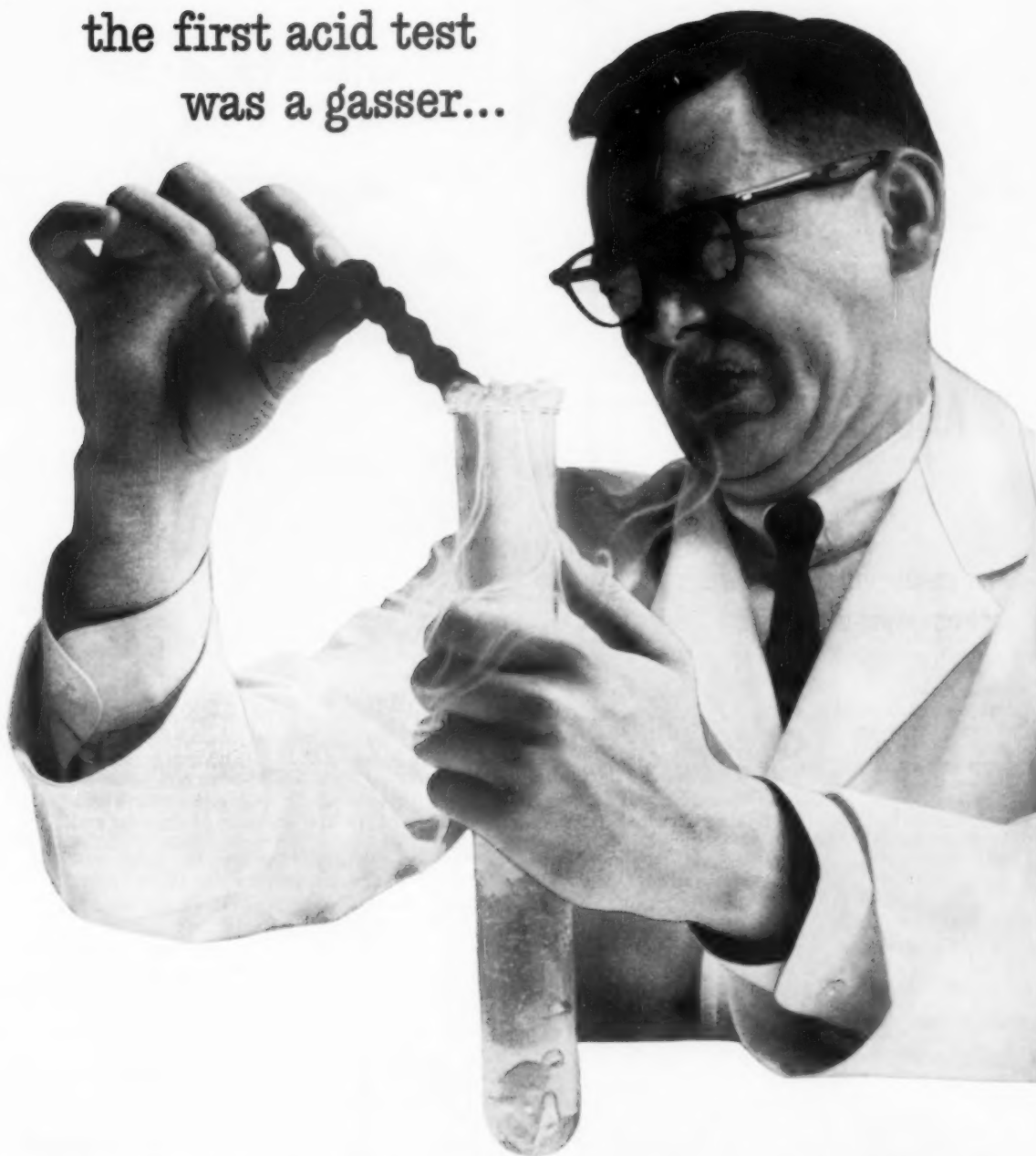
Also, you will find that WONDERWHITE has the forming properties found only in Northern sulphite pulps. Why not order a trial shipment and let WONDERWHITE tell its own story?

GASPESIA SULPHITE COMPANY LTD.
CHANDLER, QUEBEC, CANADA

SOLD BY: Anglo Paper Products, Ltd.
2055 Peel Street, Montreal 2, Quebec

SALES REPRESENTATIVE IN THE UNITED STATES:
Northeastern Paper Sales, Inc.
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the first acid test
was a gasser...



The first acid test choked us up and confirmed that acid is tough on any roller chain.

But the final "acid" test—the user test for strength and wear life—told us you can't find a better roller chain than Rex. The reason, of course, is Rex quality materials, modern heat-treat techniques, and precision construction. Ask any user.

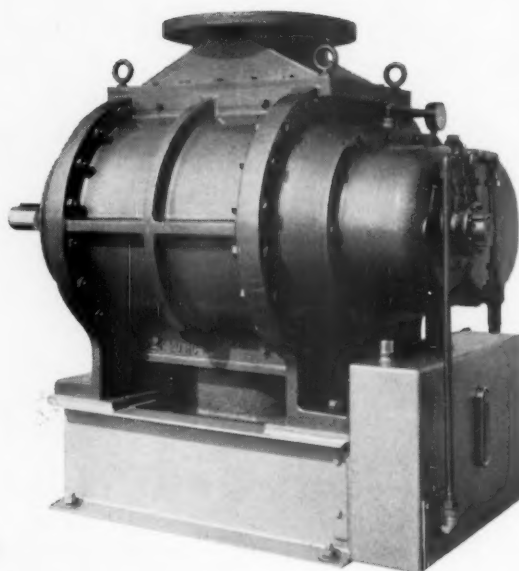
Ask your Rex Distributor or District Sales Engineer for the Rex Quality Story. CHAIN Belt Company, 4691 W. Greenfield Ave., Milwaukee 1, Wis. In Canada: CHAIN Belt (Canada) Ltd., 1181 Sheppard Ave. East, Toronto.

REX[®]
CHAIN BELT COMPANY

REX IS BEST...IN THE USER TEST

NEW SUTORBILT SERIES 3200 BLOWERS AND GAS PUMPS

with one-piece shafts
for greater efficiency at increased
horsepower and pressure ratings



New Series 3200 Sutorbilt lobe-type rotary positive blowers and gas pumps feature *one-piece* shafts. Forged from a single billet of 4140 alloy steel, they are slip fitted through—and bolted to—the impellers at the gear end.

Why a One-Piece Shaft? These heavy duty, high performance units must operate safely from 800 to 20,000 cfm at pressures from 2 to 10 psi. Incorporating this advanced shaft design in all 42 sizes eliminates using the drive impeller to transmit power . . . and greatly reduces the torsional deflection of the shaft between the timing gears and the impellers. And this one-piece shaft also eliminates adding outboard bearings for V-belt drive with normal working loads.

Other Outstanding Features include oversize heavy duty, anti-friction roller bearings with lip-type oil seals, machined sub-bases, alloy steel precision machined helical timing gears piloted to the shafts for concentricity, close grain cast iron impellers and a reversible oil pump with an oversize sump that eliminates the need for an oil cooler at ambient temperatures below 125°F. In gas and high vacuum pumps, mechanical seals prevent leakage or gas contamination.

For more information and detailed specifications on these powerful, peak-performance units, write today. Department G.

Representatives in principal cities. Consult your classified telephone directory.

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SUTORBILT CORPORATION, 2966 EAST VICTORIA ST. • COMPTON, CALIF.
SUBSIDIARY OF FULLER COMPANY • CATASAUQUA, PA.



August 1960 — PULP & PAPER

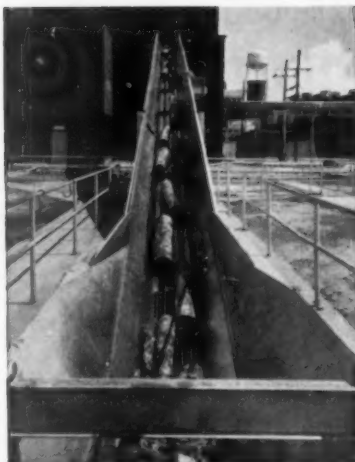
Flume system
saves 16,000⁰⁰ per year
for Masonite

A shortage of water didn't stop Masonite Corporation from using a flume system with tremendous success. The system is cutting log-handling costs by more than \$16,000 per year by simply floating logs from yard to mill.

Heart of Masonite's flume system, Rex Chain and Bucket Grit Collectors and Rex Traveling Water Screens, makes it possible to re-use existing water over and over again—solving the water shortage problem and actually cutting water usage costs. The sand separating basins and screens remove 600 cu. ft. per hour of harmful sand and 3400 cu. ft. of bark per hour from the flume water. The entire system handles 60,000 gallons per minute.

**LOW OPERATING
AND MAINTENANCE COSTS, LONG LIFE**

Rex Traveling Water Screens and Grit Collectors are easily installed in concrete channels behind the jack ladders in the flume system. They are ruggedly built—are designed to assure lowest possible operating costs and exceptionally long life. For complete information, write CHAIN Belt Company, 4691 W. Greenfield Ave., Milwaukee 1, Wis.



One of two 100-ft. Rex Log Ladders which carry logs from flumes to mill. System handles 44 carloads of logs daily.



Rex Grit Collectors (left) and Rex Traveling Water Screens (below) in flume system used by Masonite Corporation, Laurel, Miss. Rex equipment is designed to remove pump-damaging debris from flume water coming from two flumes, each approximately 800 ft. long, 12 ft. wide and 7 ft. deep.





"Paperese" is a familiar tongue at Hadley Falls Trust Company. Check our watermark: over a century of *commercial banking* service to the paper companies who have built "Paper City". Our experienced Commercial Loan Officers daily discuss business with paper industry leaders. They have the authority and ability to take immediate action on any size loan without red tape. Bring your plans for research, expansion or any good cause to the Bank where *Paper* is spoken fluently — Hadley Falls Trust Company.

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paper dye



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as important as
your raw material

gdc custom technical service

helps you gain the full benefit of color

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Your GDC technical service representative has complete knowledge and experience of all paper-color processes. He is always available and ready to help you with color matching, formulation, testing or any other color problems you might encounter.

Whatever your plans, why not get in touch with him and see how our custom color service will benefit you? It's yours for the asking.

Have you seen a copy of our booklet "Dye-stuffs for Beater Coloring" (GDC-329A)? It contains comprehensive information on our line of colors complete with application data and fastness properties. Write for your free copy today.



gdc dyes for paper—a complete

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|-----------------------|-------------|----------|---------|-------|------|
| | Beater | Calendar | Coating | Basic | Acid |
| YELLOW | | | | | |
| Auramine | . | . | . | . | . |
| Brilliant Pure Yellow | . | . | . | . | . |
| Chinoline Yellow | . | . | . | . | . |
| Chrome Yellow | . | . | . | . | . |
| Chrysophenine | . | . | . | . | . |
| Direct Yellows | . | . | . | . | . |
| Fast Light Yellow | . | . | . | . | . |
| Fastusol® Yellows | . | . | . | . | . |
| Hansa® Yellow | . | . | . | . | . |
| Metanil Yellow | . | . | . | . | . |
| Oxide Yellow | . | . | . | . | . |
| Paper Yellow | . | . | . | . | . |
| Permagen® Yellow | . | . | . | . | . |
| Stilbene Yellows | . | . | . | . | . |
| Tartrazine | . | . | . | . | . |
| ORANGE | | | | | |
| Acid Orange | . | . | . | . | . |
| Benzo Fast Oranges | . | . | . | . | . |
| Chrysoidines | . | . | . | . | . |
| Direct Fast Oranges | . | . | . | . | . |
| Fast Light Orange | . | . | . | . | . |
| Fastusol Oranges | . | . | . | . | . |
| Orange | . | . | . | . | . |
| Permanent Orange | . | . | . | . | . |
| Paper Orange | . | . | . | . | . |
| BROWN | | | | | |
| Benzo Brown | . | . | . | . | . |
| Bismarck Browns | . | . | . | . | . |
| Fastusol Browns | . | . | . | . | . |
| RED | | | | | |
| Benzo Bordeaux | . | . | . | . | . |
| Benzo Fast Scarlets | . | . | . | . | . |
| Benzo Rhoduline® Red | . | . | . | . | . |
| Brilliant Croceine | . | . | . | . | . |
| Direct Pink | . | . | . | . | . |
| Direct Reds | . | . | . | . | . |
| Fast Red | . | . | . | . | . |
| Fastusol Pink | . | . | . | . | . |
| Fastusol Reds | . | . | . | . | . |
| Fastusol Scarlet | . | . | . | . | . |
| Magenta | . | . | . | . | . |
| Oxide Red | . | . | . | . | . |
| Paper Red | . | . | . | . | . |
| Paper Scarlets | . | . | . | . | . |
| Permagen Red | . | . | . | . | . |
| Permanent Carmine | . | . | . | . | . |
| Rhodamines | . | . | . | . | . |
| Safranine | . | . | . | . | . |
| Solar® Pink | . | . | . | . | . |
| Solcarbo® Pink | . | . | . | . | . |

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GDC, as a major supplier of dyes for the paper forms. In this manner we are able to satisfy all samples or call the GDC service representative

FROM RESEARCH TO REALITY



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A SALES DIVISION OF
GENERAL ANILINE & FILM
435 HUDSON STREET • NEW YORK

CHARLOTTE • CHATTANOOGA • CHICAGO • LOS ANGELES • NEW YORK • PHILADELPHIA • PITTSBURGH

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| CLASS | | | APPLICATION | | | | CLASS | | |
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| Acid | Direct | Pigment | Beater | Calender | Coating | Basic | Acid | Direct | Pigment |
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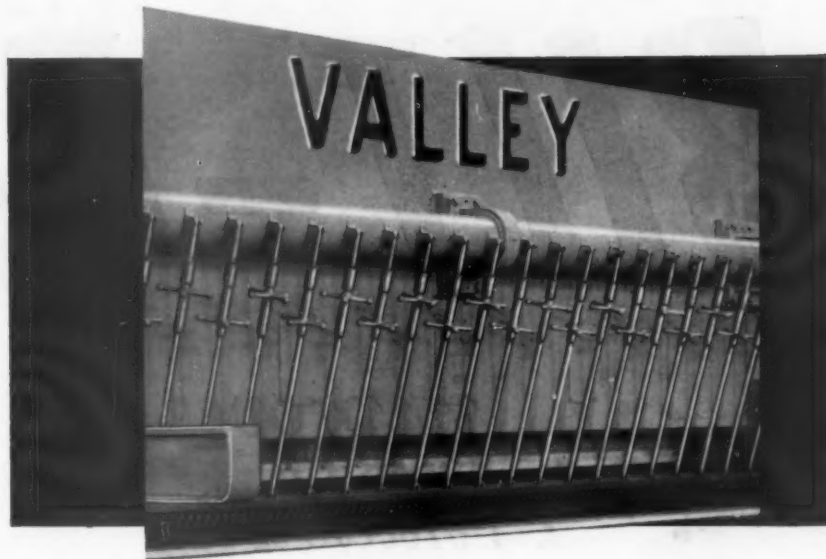
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Are Profits Too Low?

Paper industry lags behind other manufacturing industries in rate of earnings compared to capital investment required

By WILLIAM H. CHISHOLM
President, Oxford Paper Co.

● How many times do newspaper headlines say, "Such and such a company makes record profits!" Time and time again our national press features such a story. Of course, they are referring to total dollars, whether talking about one of the giants in the industry or one of the many smaller companies important to our economy. Seldom do you read of the relationship these dollar earnings have to the large sums of money invested in that company, and only occasionally to the increased dollar sales.

Each time we read statements of record breaking sales and profits, there is among large segments of the public a misconception that they are excessive just because they are greater. Seldom is any information published that will indicate that such record profits are not exorbitant.

It is because of this lack of understanding that the term profit has come into poor repute. In speaking of profit, we should remember that its associate, loss, is always round the corner and ready to cause trouble. This type of financial reporting seems to me to be detrimental to free enterprise. Large dollar earnings make good headlines, but without relating them to other important factors they become confusing and, as a result, mislead the public, our elected representatives, our employees, customers and labor unions. They provide propaganda for those who would like to degrade our capitalistic system.

I would like to point out the essentiality of profits and the fact that despite the increase in dollar profits, profits are either actually declining or, with few exceptions, are inadequate.

Profits Are Essential

If any company is to grow with the economy, it must spend money. The paper industry today is spending in excess of 50 million dollars per

year in research and development. To benefit from these expenditures, as well as keep up with increased demands, capital funds must be provided to build the facilities that will put the findings of the research and development work to use, as well as provide the increased production.

Since 1947 our industry has spent on plants over 6 billion 300 million dollars. Why was this necessary? Since 1947 we have been in an expanding economy resulting in part from the effects of the prolonged depression in the 30's, followed by the acute shortages developed during the war. What with population growth and the high rate of business generated through pent-up demands for products and the government's requirements for defense and rehabilitation of war-torn areas, our customers' usage of paper far exceeded the capacity of our plants and equipment. On top of this came continual technological improvements. As a result, 6 billion dollars had to be spent.

This has been a continuing program, with part of the funds being obtained through sales of debt and equity securities, part by reinvestment of earnings, and the balance out of depreciation money. It is this increased plant that has produced our greater sales, while the improved technology has provided improved product and greater efficiency. It is only to be expected that these two factors should develop proportionately increased profits.

Let's go back to that 6 billion dollars that came from three sources: retained earnings, sale of equities and borrowed money. It is obvious that all three are dependent on making money.



MR. CHISHOLM . . . adequate profits are not only moral but essential to our free enterprise system"

Retained earnings can only come from original earnings. Stock can only be sold if the investor believes that he will get an adequate return on investment, which again comes from earnings. Debt can only be acquired if the loaning institution is convinced he will get his money back; and once more, debt retirement must come from earnings.

If a company does not have background of earnings as well as a good prospect of earnings, none of the sources of funds will be available. This prevents a company from progressing, which means it must go backward. There is no standing still in this or any other industry. Looking at it from a broad basis, inadequate profit means the collapse of our free enterprise system and the resulting injection of government in business affairs.

Inadequate Profits

Now, profits being so essential, what is happening to them. My

Anyone who has an interest in the health and prosperity of the paper industry will find Mr. Chisholm's presentation of the financial facts most valuable and thought-provoking. It is taken from a talk to the Salesmen's Assn. of the Paper Industry

...Are Profits Too Low?

theory, despite the financial headlines proclaiming new records, is they are in danger of not being adequate. Is a fair return being earned on the money invested in the business to compensate investors for its use and risks assumed? Do the earnings provide the necessary funds for expansion, modernization and development of new products? Will they meet the payments on debts previously incurred for plant and the development of new products?

Of prime concern is the question of adequate capital. The effects of inflation on our growing economy are creating constant pressures on capital market for funds. If such capital is to be obtained, either by way of debt, sales of equity securities or reinvestment of earnings, the return on such capital is a determining factor if it is to be obtained against competition by other industries and companies. Rate of return on capital invested is the cornerstone of determining adequacy of profits, in total dollars or return on sales. True, percent of profit on sales is important, but that percent must be related to rate of turnover of capital, and the combination of these factors, if proper, should result in the necessary profits.

For example, according to The First National City Bank Monthly Letter reporting earnings of leading corporations for 1958 and 1959, 42 food chain stores earned 1.4% on sales in 1959, but 13.9% on net worth, or stockholders' equity; iron and steel earned 6% on sales and only 8.4% on net assets in spite of the strike; the paper industry earned 6.5% on sales and 10.5% on net assets; and total manufacturing, represented by 1,944 companies, earned 5.8% on sales and 11.6% on net assets.

In these figures we have a good example of the effect of turnover. Chain stores with a return of 1.4% on sales still earn 13.9% on net assets, and this is caused by their rapid turnover of capital. A similar situation exists for meat packing and dairy products, all industries with a high turnover of capital, whereas in paper and steel, which are industries requiring heavy investments of capital in fixed assets, turnover is low, averaging between 1 and 1½ times per year, and, therefore, requires a higher mark-up on costs if a reasonable return is to be obtained.

Paper Industry Lags

The paper industry shows a rate of earnings less than total manufacturing. Our profits, as well as others, are

too low and this is further substantiated by statistics of the APPA.

In the year 1947, profits after taxes were 570 million dollars, or a return of 19.6%, and in 1959, 619 million, or a return of only 9.3%.

During this time, expenditures on plants and properties totaled 6 billion 300 million dollars, which sum exceeded depreciation charges by 3 billion dollars.

The increase of 39 million dollars in earnings on the net increase in plant of 3 billion dollars is a return of only 1.3%. No investor would be satisfied with such performance.

There have been a number of instances in the paper industry where volume and sales dollars have increased several fold over a ten year span. However, dollar profits after taxes have been practically stationary.

Such volume should contribute its share to the over-all profit picture. We must restore profits to higher levels. Unless this is accomplished, it will be difficult for us to obtain funds for projected further expenditures on properties, which for 1960 alone is 700 million dollars.

Why, with the increase in selling prices over the past 15 years, have not adequate profits been maintained? There have been substantial increases in selling prices during this period, but the effect of inflation, wage rate increases, higher cost of materials and supplies, increases in taxes of all kinds, as well as many new ones, have resulted in costs more than keeping pace with increases in sales prices.

Not Sufficient Cash

As to whether paper earnings provide sufficient cash to meet the expenditures for expansion and modernization, for which, I might add there is a never-ending demand, and also provide for development of new products, let us look at the record as compiled by APPA.

Since 1947 earnings of the paper and allied products industry have averaged 505 million dollars, and after paying dividends the companies have retained and added to their capital an average of 279 million, or 55% of their earnings, which percentage is on the high side from an investor's viewpoint.

On the average, 253 million dollars a year was generated from depreciation charges, meaning that the companies obtained an average of 533 million a year for plant, working capital, debt payments and other investments such as timberlands. During this time, average expenditures on

plants were 490 million dollars, practically twice the depreciation charges, leaving only 43 million to meet increasing requirements for working capital.

Because of larger volume and effects of inflation, working capital increased during this period some 800 million dollars, or 62 million per annum. This means that we have not generated sufficient cash from earnings to meet all our business needs.

With these factors in mind and remembering that expenditures for plants will continue at high levels in the immediate future, and that depreciation funds are inadequate, not to forget the effects of continuing inflation, substantial additional capital funds will have to be raised, either by maintaining the policy of retaining a high percentage of earnings or by selling securities. Inadequate earnings mean that sales of securities are more difficult, not only from the standpoint of attracting investors, but in the cost of the money.

As we do not have much choice in the spending of money for equipment if we mean to keep abreast of technological changes, new uses of paper and paper products, and the requirements of our growing population, we get back to the question: is profit a dirty word? To the contrary, it is a most necessary word. But, how do we attain this adequate profit?

How to Boost Profits

The obvious answer is reduce costs, or increase selling prices, or an effective combination of the two. All companies are doing everything possible to eliminate unnecessary costs and waste and secure the necessary equipment to effect further efficiency. However, there is so much expense of a fixed nature in a paper mill that it is not possible to do much in this line.

A selling price properly geared to cost of product sold is, of course, essential, and without question something can be accomplished in this direction; but, here again, the effects of competition and proximity to consumer markets, all create problems that are not easy of solution.

There is the constant question of industry practices, some of which are old and need up-dating, and all should be given study as a possible source of revenue which could help keep our industry on a sound earning basis in which the public will be willing to invest the funds we need to meet the paper demands of the nation.

In summary, let me repeat: Adequate profits are not only moral, but are essential to our free enterprise system. And, the level of selling prices have a profound effect on profits.

Kraft, Newsprint Mill for Arizona

Southwest Forest Industries new two-machine mill at Snowflake, now under construction, will produce first chemical pulp in state

Construction is underway for the new pulp-paper plant of Southwest Forest Industries Inc. at Snowflake, Ariz. Due for completion in late 1961, this \$32 million, two-machine mill will have annual production capacity for 75,000 tons of newsprint and 65,000 tons of kraft linerboard, according to J. B. Edens, president.

This operation, second in the state to produce pulp, the first by chemical process, will be under the direction of Raymond E. Baker, vice pres. of Southwest's pulp-paper division. He was formerly vice pres. of Weyerhaeuser Co., Tacoma, Wash. James A. Hutchison, previously Howard S. Wright Co.'s senior representative for the industry, is resident and project engineer.

A contract for plant construction and machinery installation has been let to Rust Engineering Co., Pittsburgh.

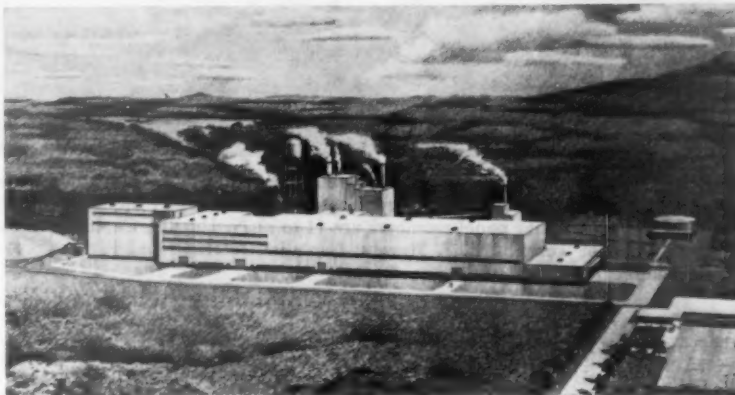
The mill site is located at 6,000 ft. elevation "near the largest single stand of Ponderosa pine in the U.S.," says Pres. Edens. Raw-product wood will arrive as short pulpwood and as chips made from sawmill leftovers.

Hydrologic surveys, including extensive test drilling, reveals water is available in adequate quantity. According to Mr. Edens, an underground reservoir of water of acceptable quality is available at capacity of "20 million gallons each day for a period of at least 100 years."

The Southwest organization, long a leading producer of lumber in the region, only recently became active in pulp-paper. Its corporate name was changed from Southwest Lumber Mills Inc. to Southwest Forest Industries early this year to "describe more accurately the type of operations carried on by the company."

During the past year the firm built a new corrugating plant at Glendale, Ariz., acquired a box firm in Phoenix and purchased five Los Angeles paper products plants.

Arrangements have already been made for distribution of large quantities of the mill's output. Of the kraft production, 75% will go to the newly acquired facilities. As to newsprint, the Hearst Corp. has contracted, on long-term basis, to purchase 50,000 tons per year. The other 25,000 tons of newsprint produced annually will be available to newspapers in the



PROJECTED TWO-MACHINE kraft and newsprint mill of Southwest Forest Industries, Inc. at Snowflake, Ariz. Mill site is about 130 airline miles northeast of Phoenix, 100 miles southeast of Flagstaff.

southwestern states.

Southwest Forest Industries' \$40 million expansion program is being financed by sale of \$26 million in bonds and notes, a recent public offering including \$12 million of subordinated debentures and 420,000 shares of common stock.

Plant Facilities

The kraft mill is to have three 4,200 cu. ft. stationary digesters which will be charged with chips by a pneumatic conveying system connecting with both chip storage and a hopper for receiving chips arriving by rail.

The Beloit board machine is designed for 1,500 fpm and will have a 166 in. by 130 ft. wire, modern pres-

sure-type primary and secondary headboxes; two straight-through suction presses, 42 paper dryers (60 in. diam.), breaker stack, size press, two calender stacks, heavy duty reel and winder.

The Beloit newsprint machine is designed for 1,600 fpm speed. It will have 258 in. by 135 ft. wire, latest type inlet and pressure headbox, two suction press rolls, 34 dryers (60 in. diam.), 8-roll calender stack, transfer reel and winder.

Groundwood pulp is to be produced by three 67 in. diam. by 69 in. face Great Northern-Waterous grinders. Kraft stock for newsprint furnish will be processed in a 3-stage bleach plant—chlorine, caustic, hypochlorite.

Alkaline Conference Shapes Up On West Coast in August

This year's TAPPI Alkaline Pulping Conference, to be held at the Multnomah Hotel, Portland, Ore., Aug. 22-24, will feature four technical sessions and opportunity for visiting some of the area's larger mills. Arrangements have also been made for visitors to see king-size forest operations the day following the conference.

The technical sessions will consist of three on alkaline pulping, of which P. H. West, Thilmany Pulp & Paper Co., Kaukauna, Wis. is technical program chairman, and one on sulfite pulping, with P. J. Frost, Crown Zellerbach Corp., Camas, chairman.

Scheduled mill visits include Longview Fibre Co. and Weyerhaeuser Co. plants in Longview, Wash., Crown Zellerbach's big specialty mill at Camas, and the Portland, Ore. plants of Electric Steel Foundry Co. and Pennsalt Chemicals Corp.

D. Wetherhorn, Continental Can Co., Wentworth, Ga., who was recently appointed chairman of TAPPI's Alkaline Pulping Committee, is gen. chairman of the conference. A. H. Wickett, pulp-paperboard div of Weyerhaeuser Co., Longview, heads the local arrangements group. LeRoy Shanaman, Pennsalt Chemicals, Tacoma, is coordinating chairman.



BLEACHING'S PAST, PRESENT AND FUTURE led to lively discussion at the closing panel session during the Chicago conference. Chairman Roy P. Whitney (seated left), launched the meeting. Speaking here is H. W. Giertz of Technical Univ. of Norway. Other panel members are (l to r) N. Hartler, Central Laboratory of Swedish Cellulose Industry; W. H. Rapson, Univ. of Toronto; R. J. Stevens, Canadian International Paper Co.; and J. A. Van den Akker, the Institute of Paper Chemistry.

Bleaching: an International View

First TAPPI Pulp Bleaching Conference reviews progress, sets sights for future. Overseas guests give global views

By **DON W. ZEIGLER**
Editor for the Midwest

• World leaders in pulp bleaching gathered June 14-16 at Chicago, Ill., for the first TAPPI-sponsored Pulp Bleaching Conference. Views of experts from all corners of the globe made this a truly international meeting. Consensus was that the event will certainly become an annual gathering—among the most important in TAPPI's long list of yearly meetings.

Bleaching's vital role in the pulp and paper industry was pointedly outlined in the opening remarks of Ferd Kraft of the Marathon div., American Can Co., Menasha, Wis., who served as gen. chairman.

Milestones in pulp purification stand out above the usual statistics and historical documentation, Mr. Kraft declared. "Speaking first about ratios and quantities," he said, "we find that of the North American chemical pulp production, 41% was bleached in 1957, as compared to only 18% in 1927 (a year before TAPPI's Pulp Purification Committee was established). The respective tonnages were 9,100,000 and 600,000. Value of this 1957 production was about \$1.5 billion and that of the chemicals used in bleaching, etc., at least \$80,000,000. These data spotlight the importance of our business."

Pulp mills began the manufacture of bleach liquor from liquid chlorine about 1923; use of elemental chlorine in bleaching dates to 1931, that of chlorine dioxide to 1946 and peroxides about 1948.

Introduction of continuous and high-density bleaching came in 1925, and about eight years later came the era of multi-stage bleaching—which overextended itself to eight or nine stages before settling down to the more practical five or six.

"Product-wise," Mr. Kraft continued, "the first bleached kraft pulp was marketed in 1932 at a brightness of about 70, compared to the present 88 or 90; the dissolving pulps were greatly improved beginning in 1933, when their alpha cellulose content was perhaps 88%; and the high-grade specialty dissolving pulps from acid and alkaline cooking came in 1946, showing alpha figures now up to the very high 90s. Successful bleaching of mechanical pulps was achieved in the late 30s. Today, we produce more than 100,000 tons of such pulp, some of it at a brightness of well over 80.

Addressing the first general session, Mr. Kraft aimed a portion of his remarks to the some 25 overseas delegates who gave the conference a genuinely global atmosphere. These were experts from such diverse ports of call as New Zealand, the United King-

dom, Sweden and Mexico.

"I do not want to insinuate in any manner," Mr. Kraft noted, "that this (bleaching) progress has been a monopolistic achievement of the United States. Quite to the contrary, there have come during the past generation outstanding developments from abroad—in the main from Europe, particularly from Scandinavia and there predominantly from Sweden. These are well known, much appreciated and widely used.

Is Bleaching Apace?

Launching into a rewarding panel session, Vice Pres. Roy P. Whitney of the Institute of Paper Chemistry (Appleton, Wis.) asked, "Is bleaching keeping pace with the progress shown by the industry during the past 10 years?" Pulp and paper, he declared, has made an historic advance during the past decade. Perhaps, Dr. Whitney wondered, bleaching progress might have taken the wrong direction, been superficial or paid too little attention to basic needs.

Five panel members looked into the general topic, "Progress in Pulp Bleaching." The session closed the three-day conference at the Edgewater Beach Hotel.

Dr. J. A. Van den Akker of the Institute stressed the physical optical properties of pulp. Progress, he said,



MODERATING ONE OF THE IMPORTANT SESSIONS was H. V. Bialkowsky of the Weyerhaeuser Co., Longview, Wash.



EFFECT OF BLEACHING on papermaking properties was scrutinized by M. H. Voelker of the Institute of Paper Chemistry.



LABORATORY WORK IN NEW ZEALAND was discussed in relation to pinus radiata kraft pulp by G. A. Nicholls, N. Z. Forest Products Ltd.

depends on the precision accuracy of reflectometers and spectrometers. We are not adequately separating variables. Difficult to achieve is the maximum obtainable reflectivity of brightness. It should be 1.0.

In achieving brightness, the real need is for multi-stage bleaching—not necessarily new chemicals. When we bleach to high brightness, said Panel Member W. H. Rapson of the Univ. of Toronto, we approach the limit, costs rise, and a maldistribution of chemicals results.

The speaker set up three goals: (1) Mixing chemicals and pulp efficiently; (2) better equipment, and (3) lower cost through better productivity.

Details Important

The details of each stage are important, said R. J. Stevens of Canadian International Paper Co. Control is vital for (1) uniformity; (2) viscosity; (3) purity; (4) cleanliness; (5) brightness, and (6) radioactivity.

Other panel members included: H. W. Giertz, Technical Univ. of Norway, Trondheim; N. Hartler, Swedish Forest Products Research Laboratory, Stockholm.

Zinc Hydrosulfite Widely Used

Apparently, the most widely used reducing agent (particularly with groundwood) is zinc hydrosulfite, according to a paper prepared by J. L. Keays of MacMillan, Bloedel & Powell River Ltd., British Columbia.

Among the reasons, said the speaker, are: (1) its brightening effect; (2) relatively low cost, and (3) no appreciable loss in pulp yield. Based on moisture-free weight, 2-3% zinc hydrosulfite can result in a groundwood brightness increase of 12-14 GE units. (Sodium hydrosulfite offers similar results but appears less stable—particularly at low pH.)

Efficient and low-cost means of reducing corrosion encountered with use of both sulfites and hydrosulfites

are still being sought. Knowledge of the true extent of the problem is yet to be determined, and well-organized studies are now underway. (Corrosion is most pronounced on Fourdrinier wire and dryer felt.)

Papermaking Properties

Although the primary purpose of bleaching is to whiten or brighten the pulp, in some cases the pulp's strength or papermaking characteristics may also undergo considerable change. In other cases, strength characteristics may remain essentially unchanged.

Because of the many variables involved, said M. H. Voelker of the Institute of Paper Chemistry, practically every species of pulp and type of bleaching sequence has usually been considered an independent study in itself.

Recently, however, certain generalized concepts and principles are beginning to emerge from rapidly-expanding research. On this basis, it is possible to sketch a general outline of the over-all bleaching and papermaking picture and indicate some of the basic factors and sources of factors that appear to be involved. This has been done in a step-wise approach that includes:

(1) A general description of the ways in which bleaching chemicals affect the composition and characteristics of pulp;

(2) A consideration of the effects of pulp composition and characteristics on the basic papermaking qualities of the fibers, and

(3) A consideration of the manner in which the basic qualities of the fibers ultimately influence actual papermaking properties.

Theory of Optical Properties

Although some of the optical properties of paper may not be simply related to those of pulp (gloss, transparency, opacity), the latter have im-

portant bearing on the color and other appearance characteristics of paper. Interaction between ultraviolet, visible and infrared radiation and cellulose in solution and in sheet and fibrous form permits both scientific and technical studies of pulp and affords fundamental data relating to the maximum attainable whiteness of the end product.

The measurable optical properties of pulp (spectral reflectances, spectral transmission) are related through the modified Kubelka-Munk theory to the spectral specific absorption and scattering coefficients of the pulp; the latter are, in turn, related to the spectral specific absorption and scattering coefficients of the pulp components. Graphical and tabular aids exist for the application of theory to practical problems. Specialized reflectances such as "standard brightness" serve as quick and precise measures of the whiteness potential of a pulp and are otherwise of technical value. Even though such reflectances are not determined with monochromatic light, they are related through theory to specific absorption and scattering coefficients (for heterogeneous light) in a very useful manner.

Investment Reduced

Reduction of capital investment for a groundwood mill using peroxide can be realized by planning equipment and process for a reaction time of 10 min. at 200°F.

This was among the statements spotlighted at the conference.

Another: The problem of bleaching high-yield pulps is to obtain high brightness (more than 80 GE) without dissolving the lignin. This cannot be performed with ordinary bleaching agents, such as chlorine, hypochlorite and chlorine dioxide, because these agents form colored substances with the lignin, which have to be attacked further. A final high brightness can therefore not be achieved

...TAPPI Pulp Bleaching Conference

before all lignin is dissolved. This was outlined in a paper by H. W. Giertz of the Technical Univ. of Norway.

Sulfite Deresination

Deresination of Sulfite Pulps with Non-Ionic Sufactants was the subject discussed in a paper by J. W. Wilson, D. O'Meara and R. M. L. Paterson, all of Columbia Cellulose Co. Ltd., Prince Rupert, B. C.

Three species of northern British Columbia coniferous woods contain 1.5-2.0% alcohol-benzene solubles. This is reduced to 0.7% in calcium-base sulfite cooking and to 0.3-0.4% in a subsequent hot caustic extraction. By adding surfactants during caustic extraction, the resin level can be controlled at any point down to 0.05%. Ether linked non-ionics have been found to be the most effective class of additives. Homologous series of polythenoxy tridecanol, nonyl phenol, dodecyl phenol and dinonyl phenol condensates with varying mole ratios of ethylene oxide were examined as additives. Each hydrophobic base gave a characteristic deresination efficiency related to molecular size. For all series investigated, efficiency was greatest at a common hydrophobic base content that was 25-35% by weight dependent on extraction temperature. The most effective temperature was 100-110°C. Level of addition had a minor effect on selection of the optimum composition.

Cottonwood behaves differently in deresination. The initial 2.0-2.5% resin is reduced to 1.0% in sulfite cooking and to 0.6-0.7% in hot caustic extraction. Wood seasoning and caustic strength have a pronounced effect on final resin content. Surfactant addition was much less effective than with coniferous pulps, and a molecule containing 35% hydrophobic base gave optimum results.

Peroxide: New Developments

In a paper prepared by three staff members of E. I. du Pont de Nemours & Co. Inc., the status and new development in peroxide bleaching of pulps were thoroughly discussed. Authors were F. L. Fennell, G. E. Smedberg and N. J. Statler.

Data obtained in the refiner bleaching process show that under certain conditions there is a significant bleaching advantage when sulfuric acid is used for partial neutralization of the caustic-treated chips just prior to, or simultaneously with, the peroxide addition as the chips enter the refiner.

A high-temperature groundwood bleaching process has been developed

in the du Pont laboratories using peroxide at 200°F for a period of 10 min. to produce groundwood with a brightness comparable with that obtained with conventional processes operating at 100-110°F. This high-temperature peroxide bleaching process was developed primarily to meet the needs of smaller groundwood mills for reduced capital investment in line with reduced tonnage requirements.

Simplicity, Flexibility

Many optical properties of pulp are described by the absorption and scattering coefficients. In a paper by J. H. E. Herbst and H. Krässig a new method for the determination of these coefficients was presented. Both authors are associated with Industrial Cellulose Research Ltd., Hawkesbury, Ont.

When pulp is dyed under suitable conditions, the plot of $(1-R_{90})^{2/2}$ against the amount of dye is linear, in agreement with the Kubelka-Munk equation. The slope of this plot gives the scattering coefficient, and the absorption coefficient is calculated from the scattering coefficient and the reflectivity of the undyed material. Advantages claimed are simplicity of procedure, flexibility of the conditions under which the method is used, and the fact that the results are not dependent on basis weight. A disadvantage is that results obtained are relative only.

Alkaline Extraction

In a paper, "The Alkaline Extraction of Woodpulp," M. Wayman of Sandwell International Ltd., Vancouver, B. C., pointed out that the caustic-to-pulp ratio, temperature, time and consistency of extraction differ with raw material and with the product desired. Alkaline extraction of kraft pulps, and of sulfite paper pulps is usually quite mild, whereas preparation of dissolving pulps requires more intensive treatment. Hot dilute caustic soda extraction and low-temperature concentrated caustic soda extraction can be used separately or in combination to produce more highly purified woodpulp. Cold caustic soda extraction as a stage in purification is necessary where very pure cellulose is desired from either sulfite or kraft woodpulp. The caustic extraction stage also controls resin in pulp, usually assisted by use of additives; and recent work suggests that it may, under some circumstances, be used to control brightness and viscosity by the incorporation of a small amount of bleach.



OPTICAL PROPERTIES OF PAPER were studied in an address by R. H. Boehm, Kimberly-Clark Corp., Nee-nah, Wis.



PLACE OF REDUCING AGENTS in the bleaching picture was outlined by R. G. Meret, MacMillan, Bloedel & Powell River Co. Ltd.



MATERIALS OF CONSTRUCTION are vital to bleaching success, declared R. L. Allen Jr., Eastern Engineering Co., Atlanta, Ga.



INTRODUCING SPEAKERS FOR THE FIFTH SESSION was H. L. Crosby, M. W. Kellogg Co., who served as moderator.



NEW EXPANSION AT FOLEY includes comparatively new bleach plant (above) and line of 14 digesters (right).



Buckeye Expanding Again!

Foley, Fla.

With the newness hardly tarnished on its 320 million expansion program of last year, Buckeye Cellulose Corp. has now embarked on a new program—this time boosting capacity even higher and doubling its chlorine dioxide generating capacity.

This is the third time in five years Buckeye has set about increasing the production capabilities of its Florida operation. The last program, completed about a year ago, shoved capacity to 260,000 tons a year. The new increase—13%—will increase it another 33,000 tons.

Buckeye was also one of the first in the industry to put an Olin Mathieson chlorine dioxide plant into operation. Olin provided technical assistance for the first installation, is also assisting on the new addition.

The chlorine expansion program will provide additional bleaching capacity to meet demands for continually brighter kraft and dissolving pulps, according to G. A. Tougas, manager of the Florida operations.

The mill is still fairly new having started up in 1954. In this relatively short period, Buckeye has boosted its output by 120%. Under the present program, the woodyard will be expanded and additional chipping equipment added; two new digesters will be added to the 14 now in operation; its unique double screening system will be improved upon with addition of new screens and rear-

rangement of the present ones. Control will also be improved upon with additional instrumentation. Buckeye's new machine will also be modified to gain more drying capacity for pulp.

Ingenuity has also been exhibited in the chlorine dioxide program, reducing down time to a minimum. Faced with the problem of extending the absorption tower 10 feet, engineers added an impervious membrane and an acid-resistant brick lining to the steel shell of the extension while it was still on the ground.

Once the extension was lined, the head of the old column was removed and the new extension was hoisted and bolted into place. Production was

thus resumed as soon as the packing was placed in the new section. Chlorine dioxide will be stored in a Pfautler glass-lined tank.

Fiberglass polyester pipe will be used in the chlorine dioxide gas lines. Buckeye hopes to cut down corrosion through the use of polyester. Added efficiency has also been provided through the use of a new 6-ton Knapp generator. The original generator has now been added as a secondary generator, making it a two-stage system.

The by-products of ClO_2 production, sodium-sulfur combinations in the main, are recovered in the plant's recovery system which exceeds 95% recovery efficiency.

DISCUSSING new addition are Paul Honey (left), vice pres. and mgr. of Buckeye's pulp div., with Lee Wakeman (center), mgr. of Foley mill, and Robert Ganoung, dir. of engineering.



Industry's Top Scientists

attend big annual meeting of German Association at Garmisch. New techniques and information presented. Award for Dr. Steenberg

Garmisch-Partenkirchen,
West Germany

● The annual Zellcheming convention, Germany's big scientific meeting for the pulp and paper industry, distinguished itself in 1960 in two ways:

1. It brought forth important new work in quality measurement, conditioning and surface stability of paper, in white water control, in the knowledge of fiber behavior in pipes, organized mill instrumentation and some of the most remarkable microphotography and electron micrograph work ever presented at a technical meeting. International authorities well known in America—Drs. Börje Steenberg, Walter Brecht, George Jayme, Hans Bucher and others—placed a stamp of prestige on this meeting seldom matched anywhere in the world.

2. The other important development was that Zellcheming has definitely become a truly important international meeting. Among the 800 industry men and 300 women who registered, there were 15 nations represented. The German organization has actively set its course for more scientific contacts with the pulp and paper scientists of other countries, and actually, one-fourth of the program was presented by "outsiders." There were seven participants from outside German borders—from Sweden, Finland, Norway, Austria and Switzerland.

Dr.-Phil. Hellmuth Müller-Clemm,



DR.-PHIL. HELLMUTH MÜLLER-CLEMM, perennial president of the German association (on left) and **DR. G. HUNGER**, assistant to Dr. Jayme, Darmstadt Institute, one of the younger leaders in technical activities in Germany.

the perennial president of the German association, is largely responsible for this development, as he has aggressively championed "more friendly contacts among all the countries." He considers this goal, he told the writer, "of utmost importance for the advancement of Western culture."

Few other prominent pulp and paper making countries in the world today have a personality to match Dr. Müller-Clemm. He has given many years to the presidency of Germany's technical association. A man with a rich background of experience in high places in both economic and technical

phases of this industry, Dr. Müller-Clemm is devoting his "mellowing years" enthusiastically to Zellcheming. First elected president in 1933, he has been repeatedly re-elected, except for 1942-47 when he withdrew because he was not a "party" man. At Garmisch, this patriarch of the German industry was persuaded to take on another two-year term, until 1962. Then, he says, he definitely is going to retire.

Next spring, Zellcheming probably will meet in Baden-Baden.

Dr. Steenberg Discusses Fiber Behavior in Pipes

Prof. Börje Steenberg, director of the paper technology dept. of Swedish Forest Products Laboratory in Stockholm, discussed water fiber suspension and the difference in consistency of fibers flowing in different pipe areas. In the pipes the fibers go together in three-dimensional networks. Dr. Steenberg called it "fiber block building." There is also a strong tendency to form shives.

Fibers tend to orient themselves in certain positions within pipes. Near the walls in the pipes are mainly to be found fines, while long fibers are in the middle pipe areas. The fines then tend to go to the top of the sheet on the machine and the long fibers to the bottom. The fibers stream through pipes at a velocity dependent upon a thin layer near the pipe wall, these being the fines and fillers chiefly.



TWO VIEWS—FRONT AND BACK—OF A STUDENT CELEBRATION which provided some unscheduled entertainment just outside the door of the gymnasium auditorium in Garmisch-Partenkirchen where the German Zellcheming convention was held. This was definitely not a part of the convention, but many delegates were amused. Note the 1939 class date on the beer keg, in the rear view.



DRS. JAYME (left) and BUCHER, who presented some remarkable electron and micrography films.

Remarkable Photographic Work By Jayme and Bucher

A special treat for the Zellcheming convention were two remarkable presentations of microphotography by Prof. Dr. Georg Jayme, head of the cellulose chemistry division of Hochschule Darmstadt, and by Dr. Hans H. Bucher, head of the division of physical chemistry and microscopy, Research Laboratories, Cellulosefabrik Attisholz AG, near Solothurn, Switzerland.

The Garmisch meeting saw the first stereo electron micrographs of pulp, prepared by Dr. Jayme and his assistant Dr. G. Hunger. Fine structures of fiber and fiber bonding were clearly shown. The drying effects on wood-pulp fibers, and the fiber-to-fiber bonding resulting from this, were revealed.

Dr. Bucher's demonstration was exceptional and provides means for semi-quantitative sugar analyses on the tertiary fiber wall. His work revealed that xylose constitutes about one-half of the sugars in the tertiary wall.

New Food Additives Law Raises Packaging Problems

A new law in West Germany guards against contamination of foods by packaging materials. This problem was discussed by Fraulein Dr. B. Hamburger of Düsseldorf-Oberkassel, who reported on a series of laboratory tests of three kinds of slimicides. Several types of bacteria and fungi were isolated, and experiments with Hg slimicides, she reported, proved fatal to mice. But chlorphenol proved safe in the mice tests.

Dr. Hamburger found that bacteria quickly became resistant to slimicides and to meet this situation it was advisable to change the type of slimicide used, perhaps every week or every month, depending upon mill conditions. Also, a sudden treatment of the slimicide once a day in the white water box proved more effective than continuous or more frequent use of smaller quantities.

Multi-Stage Cooking From U.S. to U.S.S.R.

There were significant suggestions for improvement of pulping processes as a result of a survey of suggested and realized multi-stage cooking systems made by Dr. Sven Rydholm, assistant research director for Billeruds AB at Säffle, Sweden. He predicted the development of more such processes and mills to use them, especially two-stage processes for kraft. He estimated total production of multi-stage cooking is about 1 million tons/year.

Dr. Rydholm said it is possible to carry out all the multi-stage processes as continuous cooking to simplify some operations.

There have been ten pre-hydrolized kraft woodpulp mills built in five countries and an eleventh is being built in the Beikjal district of Russian



DR. RYDHOLM predicted expanded use of multi-stage cooking systems.

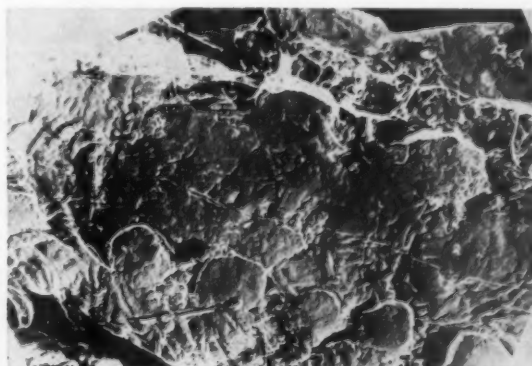
Siberia. Pre-war pioneer prehydrolyzed kraft mills were the Wittenberg and Königsberg mills of East Germany, now shut down. Then after the war came the Uddeholms mill at Sköghall in Sweden, using pine.

Then four in the United States, International Paper Co. at Natchez, Miss. (using gum); Buckeye Cellulose at Foley, Fla. (pine and gum); Rayonier Inc. at Jesup, Georgia (pine); and part of the Weyerhaeuser production at Everett, Wash. (Douglas fir).

Others are the Yanago mill in Japan (softwoods), the Nagda mill in India (bamboo) and Cellulose d'Aquitaine, built last year at St. Gaudens, France. Dr. Rydholm also mentioned a straw pulp mill, Miranda, in Spain, built in 1956.

First patents (Richter, De la Roza) were in 1930-32; the early German laboratory work was in 1935-45.

For two-stage sulfite, Dr. Rydholm listed the Grycksbo and Söraker mills in Sweden and Lilleström in Norway, all three now shut down. Then the Stora process mills at Skutskär and Ömskölsvik (Mo & Domsjö) and the new one being built by Stora Kopparberg-Scott Paper in Nova Scotia. Also, Union Mills at Skien, Norway;



TWO OF MICROGRAPHS which were shown three-dimensionally as the Garmisch convention by Dr. Jayme: (left) Spruce sulfite pulp after treatment with diluted caustic soda. The extraction of amorphous material from the fiber has caused a shrinkage of the inner cell wall layers during drying and consequently axially running structures become visible. (Right) Commercial writing paper with finish. The effect of calendering is shown here for the first time on the surface of a fiber. The microfibrils have been welded together by pressure and heat; the surface appears to be that of an amorphous substance.

... Zellcheming at Garmisch

Saugbruks at Halden, Norway and Kramfors in Sweden. The Sivola process in the Rauma mill in Finland is a different two-stage system, described as sulfate carbonate.

Test methods for the weight determination of dust on paper and board was the subject of a report by Dipl.-Ing. T. Holte of Oslo, Norway. The dust on paper surfaces is lifted away by a glue foil, this then being dissolved in water. The water is then sucked through a filter funnel and the dust retained gravimetrically determined.

Dr. Brecht and Aids Give Report on New Techniques

Prof. Dr.-Ing. Walter Brecht, head of the Paper Manufacturing Institute of Hochschule Darmstadt, discussed the "handle" of paper, a popular term for quality which up to now has not yet been strictly determined and described by any measurement. Dr. Brecht has established a technical definition for the "handle" of paper and described it.

Mitscherlich Medal Award To Dr. Börje Steenberg

Only nine times in the past 25 years has an award been made of the highly honored Alexander Mitscher-



DR. BRECHT presented a report on defining "the handle of paper" and participated, with assistants, in preparation of other papers.



DR. STEENBERG, who was awarded the Mitscherlich medal.

lich commemorative medal, which many in this industry regard as perhaps the world's outstanding trophy for pulp and paper scientists.

At Garmisch-Partenkirchen, on June 29, a surprise event of the Zellcheming program was presentation of the medal to Prof. Dr. Börje Steenberg, head of paper technology at the Swedish Forest Products Laboratory. There could hardly have been a more popularly approved award than this. Dr. Steenberg has been a scintillating intellectual leader for the industry for years, and there are many many working today in U.S. and Canadian mills who cherish their experiences studying under him in seminars, etc.

The last time a Mitscherlich medal was awarded was five years ago, to Dr. Harry Lewis, then dean and now vice president of the Institute of Paper Chemistry, Appleton, Wis. Other winners—1936 to 1952—were Drs. Walter Brecht, Karl Freudenberg, E. Hägglund, Rudolf Sieber, Georg Jayme, Herman Staudinger and Emil Heuser, in that order.

The award is given for exceptional services in the international field, in helping to solve the industry's scientific problems. It was first awarded to Dr. Brecht of Darmstadt Institute on the 100th anniversary of the birth of Prof. Mitscherlich, of Freiburg, Germany, the famed inventor of the sulfite pulping process.

Asia—Where Expansion Needs Are Greatest—to be UN Conference Subject

Problems of developing more extensive pulp and paper production in Asia and the Far East will be considered October 17-31 in Tokyo at a United Nations conference.

Obstacles now impeding establishment of economically-sound mills in the region (where paper consumption is far below world average) will be considered by government representatives, industrialists, research specialists, forest experts and equipment manufacturers.

The meeting is to be sponsored by the UN Economic Commission for Asia and the Far East (ECAFE), the UN Bureau of Technical Assistance Operations and the Food & Agricultural Organization.

Despite recent improvement, pulp and paper consumption in the Far East (excluding Japan, mainland China and Oceania) is still lower than

in any major region in the world. Average annual consumption (1958) is approximately 3.3 lbs. (1.5 kg.) per capita, compared to a world average of 54.42 lbs. (24.7 kg.). These world figures are the latest available (1959) and from the 1960 World Review Number of PULP & PAPER.

Even with its low consumption, the region has always been a net importer of pulp, paper and paper products. In 1958 Asian nations are reported to have imported pulp, paper, waste-paper and paperboard at an estimated rate of \$200,000,000.

Moreover, consumption is expected to approximately double during the next 10 years because of population increases and hoped-for literacy improvement, together with an expanded economic growth rate.

The Asiatic and Far Eastern resources in papermaking materials are

extensive and varied. Forests cover about 1,309,630,000 acres (530,000,000 hectares), or about one fifth the total land area. However, uneven distribution of forest resources and relative shortage of forests in some areas has led to widespread use of non-traditional fibers—bamboo, rice straw, various reeds and grasses and bagasse.

One of the tasks of the Tokyo meeting will be to compare the merits either of further exploiting these resources and establishing plantations of fast-growing species or of making use of the natural tropical forests.

Basic papers for the meeting are being prepared by FAO in Rome and by ECAFE in Bangkok. Both organizations are cooperating in preparation of case studies within the region. In addition, it is expected that nearly 80 papers will be submitted by independent experts.



NEW NO. 2 MACHINE (left) is rated at 200 tpd, specializing in paper; No. 1 (right), at 450 tons daily, is exclusively on linerboard.

Georgia-Pacific Boosts Production

Major expansion for "still-new" market mill that thrives on 100% residue wood features a new 175-in. paper machine

● Georgia-Pacific Co.'s newly expanded plant at Toledo, Ore. is on stream. The addition increases rated capacity of this kraft mill from its previous 350 to 650 tons per day.

A "newcomer" to the field, G-P's production of pulp-paper began in Jan. 1958 on completion of the Toledo plant. (See Aug. '58 PULP & PAPER). Success of the firm's entrance into the industry is pointed up by the fact that it was "out of the red" in the third month of operation and that a need for expansion became apparent "almost before the newness wore off."

The new facilities have been tied in with the existing system and, according to William J. Shelton, resident vice pres. and mgr., full production status has been reached on the new 175 in. wide paper machine.

The expansion project, which started about a year ago, was completed on schedule in spite of the steel strike and other delays. Mr. Shelton calls it "one of the fastest expansions of this magnitude ever done . . . and

it was completed within our budget."

Design capacity of the original mill was 250 tpd. This was gradually increased where output averaged 330 tons daily. Now, as a 2-machine mill (both machines built by Black-Clawson), production capacity stands at 650 tons/day. The 262 in. No. 1 machine, rated the largest on the Pacific Coast when dedicated 2½ yrs. ago, is wholly consigned to linerboard. On this basis its capacity is 450 tons. Capacity of No. 2 machine, a 175 in. unit producing paper grades and board up to about 33 lb. basis weight, is 200 tons/day.

Except for shops, stores, laboratory and main office building, the expansion involved an entirely new pulp-paper mill, tied in with existing facilities. The digester-washing-screening building was extended to accommodate 8 digesters (3 were actually added, making a total of 7, all built by American Pipe & Construction) and pulp washing, screening facilities. Another 7-effect evaporator and re-

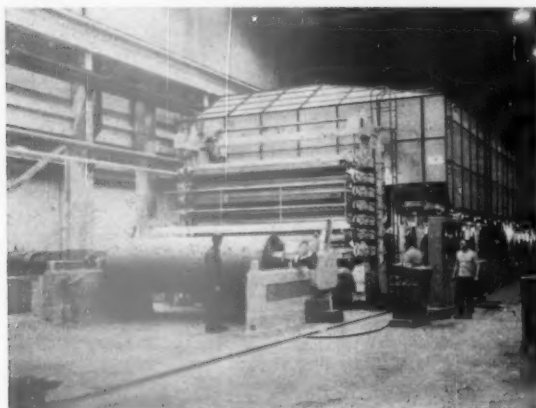
covery boiler plant were installed; additional causticizing, lime reburning, and stock preparation equipment added.

As to start-up, salable customer products were obtained from the first sheet coming onto the reel from No. 2 machine, according to Edmond Erickson, asst. manager.

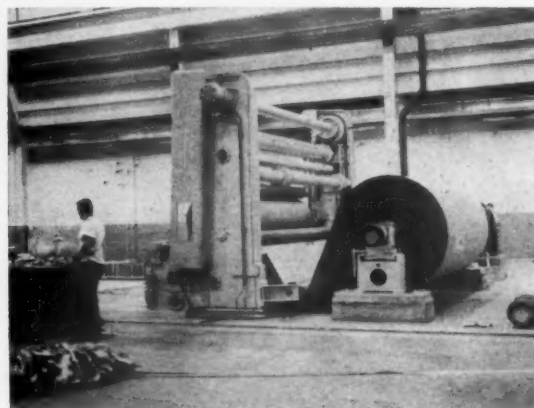
The expansion took place with minimum disruption to production and existing facilities as a result of planning and having made allowances for this possibility in designing and building the original plant. Stone & Webster handled the expansion engineering work; Hoffman Construction Co. was general contractor.

To date G-P has been strictly a "market" producer and, according to a company spokesman, the added production "will go into the general markets as presently established." The major portion of production is currently shipped to West Coast customers but some of the Toledo-produced paper has been marketed in

Growth . . . integration . . . utilization keynote Georgia-Pacific's plant expansion which nearly doubles firm's kraft production



FIRST REEL OFF No. 2 machine was made into marketable product.



MODERN WINDER efficiently processes paper to customer orders.

Asia and Europe.

The company anticipates entering the corrugated box manufacturing field by establishing a plant in the Pacific Northwest. Extensive survey work is underway to select a plant site. If and when the converting plant is built, it presumably will be supplied chiefly from the Toledo mill.

G-P's entire pulp-paper production

is based on the use of residue wood obtained from sawmills and veneer or plywood plants; most of which are owned by the paper company's parent organization, Georgia-Pacific Corp.

The "wood room" is a mountainous stockpile of chips from which the pulp mill continually draws its raw-product wood. The pile is almost as constantly restocked with chips arriving from

tributary mills. Among these are G-P plants at Toledo, Coos Bay and Springfield, all located in the western part of the state. Chips produced locally are transported directly to the stockpile by pneumatic conveyors. Those obtained from outside plants are shipped to Toledo by rail and pneumatically added to the master pile.

Principal Mill Equipment and Suppliers for G-P Expansion

Paper machine (600-1800 fmp, 175 in. wire), Black-Clawson Co.
Paper machine drive, General Electric Co.
Dryer drainage system, Ross-Midwest Fulton Corp.
Headbox (3-pass, 170 in. wet deckle), Valley Iron Works
Roll covering, Huntington Rubber Mills
Hood and ventilation system, Drew Engineering
Roll conveyor, Lamb-Grays Harbor Co.
Control valves, Mason-Neilan, Fabri-Valve, Rovang
Winder (type 478, 164 in. trim), Cameron Machine
Winder drive, General Electric
Fan pump, Allis-Chalmers
Process pumps, Allis-Chalmers, Goulds
Saveall (8x12 ft.), Dorr-Oliver Inc.
Refiners (42 in. Double-D), E. D. Jones & Sons
Jordans (Majestic), E. D. Jones
Broke pulper (No. 4 Pulpmaster), E. D. Jones
Tile and tank linings, Stebbins Engineering Corp.
Process control panels, Thompson Sheet Metal

Recovery boiler (150,000 lb/hr), Combustion Engineering Inc.
Precipitator, Koppers Co. Inc.
Fans (forced, induced draft), American Blower

Evaporators (7-stage, 250,000 lb/hr), Swenson
Evaporator instrumentation, Bailey Meter
Evaporator pumps, Taber

Digesters (three 4600 cu. ft.), American Pipe & Construction Co.
Black stock screens (two 400 ADT), Improved Machinery Co.
Brown stock washers (three 11½x16 ft.), Swenson (Whiting Corp.)
Foam breaker and thick stock pump, Improved Machinery
Washer hood and exhaust, Drew Engineering Co.

Reject refiners, Sprout, Waldron Inc.
Fibrilizers (two 200 ADT), Improved Machinery
Heat exchangers (three 1120 ft. surface area), Rosenblad Corp.
Feedwater softeners, filters, deaerator, Graver
Feedwater pump, Worthington

Lime kiln (8x250 ft.), Allis-Chalmers
Mud filter (6x6 ft.), Eimco
Lump crusher, Dorcco
Kiln lining, Harbison-Walker
Steel tanks, American Pipe & Construction

Slaker, causticizers, lime mud washer, Dorr-Oliver
Conveyors, Link-Belt Co.

Chip blower system (60 units/hr.), Rader Pneumatics Inc.
Chip dumper (200,000 lb.), Air-O-Flex
Chip hopper and conveyor (60 units/hr.), Link-Belt

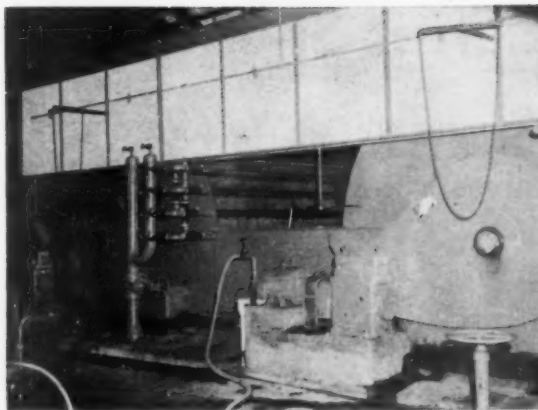
Effluent pumps, Allis-Chalmers, Layne & Bowler
Pipeline (18 in. diam.), American Pipe

Transformers, substations, motors, starters, switchgear,
 General Electric

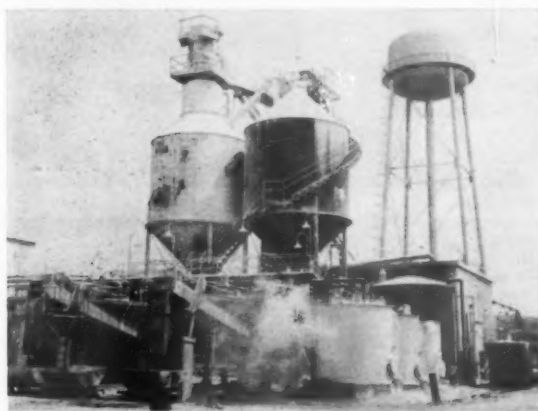
Consistency regulators, DeZurik Corp.
Vacuum pumps, Nash
Instruments, Foxboro, Minneapolis-Honeywell, Bailey
Reducers, Western Gear
Couplings, Koppers, Dodge
Valves, DeZurik, Pacific, Jenkins, Rovang



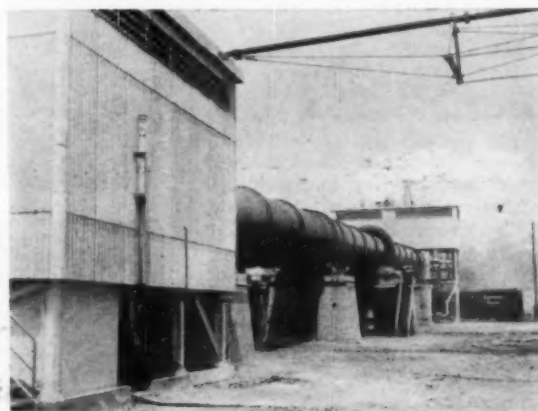
EXPANSION EXTENDS through entire plant. Digester-screening-washer building at right; recovery and power boilers in center structure.



BROWN STOCK WASHERS handle increased throughput.



CAUSTICIZING SECTION is now doubled, new lime silo on right.



TWIN LIME KILNS (250 ft. long) are supported by expanded, unified foundations.



PAIR OF 7-EFFECT evaporators (No. 2 in foreground) are compactly located between accumulator tank and recovery building.



GIANT OUTSIDE STORAGE PILE of chips made from lumber and veneer mill residues supplies entire pulpwood needs of Georgia-Pacific mill.

Cutter Sheets Board and Paper

German unit at West Virginia's Covington mill synchronizes speed of knives with web, has overlap delivery and mounting layboy

● West Virginia Pulp and Paper Co. is now using a new type sheet cutter at its bleached board division at Covington, Va., to sheet both coated and uncoated solid bleached kraft paperboard. Paperboard grades ranging from .009 to .025 caliper can be handled. The unit will also be used for sheeting various envelope paper grades produced at Covington.

The cutter is known as Synchro-Fly and is said to be the first such unit in a North American paper mill. It is made by Jagenberg-Werke AG, Düsseldorf, Germany.

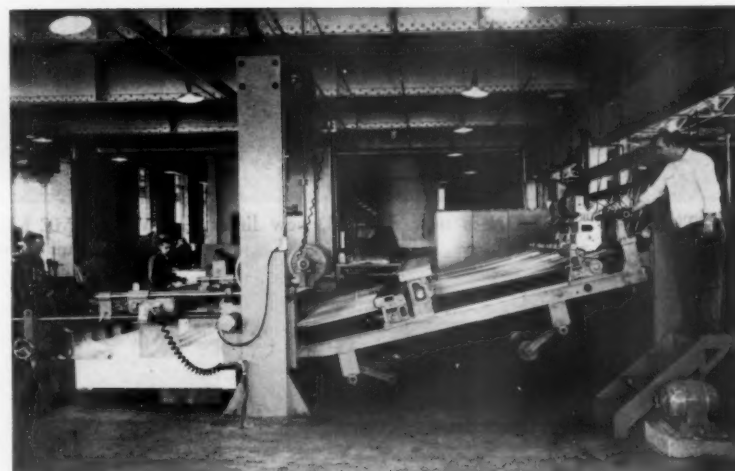
Main feature of the cutter is that both knives are mounted on rotary cylinders which are so driven that the peripheral speed of the knives is synchronous with the speed of the web regardless of how fast the machine is running and web speed. The cutter also has overlap delivery and mounting layboy.

The cutter is designed for a web width of 96 in. Because it is designed for both paperboard and envelope stock, the backstands can accommodate either 8 rolls of paper, 50 in. dia., or 3 rolls of paper, 72 in. dia. Two backstand sets are mounted on large motor-operated shuttle platform so that one set of rolls can be loaded while the other is being sheeted. Each roll position is fitted with a large water-cooled band brake pneumatically operated. Individual pressure gauges show air pressure in the operating cylinders for each brake.

A decurler straightens the web, when needed. Top and bottom slitters are set to scale by rack and pinion. Bottom slitters are driven but are mounted off the shaft for easy removal of slitter blades. Of interest is that the web runs through the cutter horizontally. The cutting operation of the web is said to be relatively quiet.

The sheets are carried through the machine by 8 in. wide bottom felts. The speed of the belts can be varied by PIV gear. The bottom felts of the overlap delivery are individually tensioned, so that any single belt can be replaced.

The overlapping delivery swivels as the pile mounts. The rate of rise is variable and can be set at any desired speed. The mounting layboy can pile sheets up to 60-in. high on the skids.



SHEET CUTTER installed by West Virginia Pulp and Paper Co. at Covington, Va. mill, has both knives spiral mounted on identical drums which vary in speed at each revolution to be synchronous with web at time of cutting. Mounting layboy at top; overlapping delivery in lower picture.

An electronic scanner transmits impulses to the counting box, whenever a gap between the two sheets passes the scanner. The box has a counting magnet, set for the desired sheet count. When the preset count has been reached an electric signal operates the ream markers. A special tape is cut off and folded in each marker, so that the next upcoming sheet car-

ries it to the front of the pile where one end of the tape flips open. Thus all piles are front marked and can easily be seen by the operator.

A 40 hp Westinghouse AV drive, operating from a 440 volt, 3 phase, 25 cycle power supply drives the cutter. The dc motor has a base speed of 1750 rpm with armature voltage control by 175 rpm.



SEA OF PULPWOOD FEEDS GNAWING APPETITE of Sudbrook Pulp Mill Ltd. Hardwood comes to the plant from surrounding counties and Southern Wales.

Britain's N.S.S.C. Woodpulp Mill

Wiggins Teape Sudbrook mill is a success filling raw material needs for this traditionally woodpulp buying nation

—Sudbrook, England
 ● Few British resources have not as yet been fully utilized. Two of these—hardwoods and water—are the story of Gatecel pulp.

Prompting construction of England's new pulp mill—Sudbrook Pulp Mill Ltd.—was a need on the part of the Wiggins Teape Group for a certain quality of papermaking fibers that could not be obtained from normal sources. The Group required a woodpulp that would blend with its quality purchased pulps to give special characteristics to its wide range of papers.

Three considerations were involved in giving go-ahead to mill construction: (1) type of fiber required; (2) economic availability of raw materials, and (3) economic advisability of pulpwood processing.

After more than a year of operation, the home-grown hardwood,

when treated by the NSSC process, is producing the woodpulp required. It has made no profits, Chairman Leslie Farrow concedes—but never mind. Sudbrook's special woodpulp (Gatecel) fills out a winning hand, along with imported pulps, for necessary Wiggins Teape raw materials.

In its first year the mill operated at 20,000 tons per year but in 1960 it will probably produce 30,000 tons or more.

England for centuries had been a traditionally woodpulp-buying nation. From top management to shift worker, everything concerned with Sudbrook was new. But the experience of the past year or more will possibly set patterns for a new woodpulp mill in Scotland, in which several big British paper companies may combine.

The amount of wood available on a sustained basis is now approximately 80,000 to 90,000 tons per year, and

quality is not up to standards in other countries. Sudbrook's specification is therefore more liberal, and the mill is currently studying the possibility of waste wood utilization.

As explained by a Sudbrook official: "The percentages of conifers and broad-leaved trees growing in the United Kingdom are 53% and 47% respectively, and the output of the former in terms of tonnage is growing as newly planted forests come to maturity. But it is with the latter that Sudbrook is concerned. These hardwood supplies are transformed into bleached NSSC pulp. (We prefer, however, to omit the term "semi-chemical," since we believe it a misnomer and prefer to call our pulp 'neutral sulfite pulp'.)"

Sudbrook is virtually the only site in southern England that can support a pulp mill. The mill has now been operating for over a year and is pro-

... Sudbrook

ducing a pulp found in all Wiggins Teape papers (dry crepe tissue, banks, bonds, writing, greaseproof, glassine, vegetable parchment, duplicating) and is now being used as the base for NCR (no carbon required copying paper—licensed by National Cash Register Co.)

As Wiggins Teape boosted production in the postwar years, demand for papermaking fibers and for an increased variety of fibers expanded accordingly. Need for a specially bleached hardwood pulp—to blend with other raw materials—became of greater importance. Formation or evenness of certain papers, coupled with regularity, was becoming an increasingly important demand from printers and converters. Better formation would also enable paper machines to operate at greater speeds without sacrificing standards. The answer was found in blending imported softwood

fibers with home-produced hardwood. Extensive investigation showed that "sufficient hardwood was available, and that it would benefit the country to make fuller use of it."

Process Used Since 19th Century

The neutral sodium sulfite process used at Sudbrook is a British invention dating back to the middle 1800s, when woodpulp, esparto and straw were first used in papermaking. It is suited to high quality and to a pulping operation consuming an annual 50,000 to 70,000 tons hardwood.

Incentive to Suppliers

Pulpwood is purchased by weight, not by measurement—which is proving an added incentive to suppliers to deliver to the mill immediately after felling. Sound hardwood from at least 13 species can be used, provided it is cut into 4-ft. lengths, is between 3½ and 12 in. in dia., is reasonably straight and not forked.

Largest areas of hardwoods in Great

Britain are in the southern counties, in south Wales and in the adjoining English counties.

An official of the Forestry Commission advised T. H. Frankel, technical director and director in charge of the pulp mill project, to investigate the area surrounding Sudbrook near Chepstow on the mouth of the Severn (some 15 miles from Bristol). The region has a plentiful fresh water supply and abounds in deciduous woods. The move westward was also influenced by the fact that Wiggins Teape had by then increased its interests in south Wales by adding to the new paper mill at Bridgend, a large mill at Ely in Cardiff and a coating plant at Treforest, where NCR paper is now made.

No imported materials are used in the entire Gatecel manufacturing process, and efforts are constantly made to see that nothing is wasted at the mill. Plans now call for bark to be used as fuel in a boiler producing some of the plant's steam requirements.

Wood Problem: Barking and Chipping

Engineering work at Sudbrook began in October 1956, machinery installation one year later and the first pulp made in the spring of 1958.

Although virtually all home-grown hardwoods are used, predominant species are: oak (30%); birch (15-20%); beech (15%); and ash (10%). The remaining 20-30% comprises alder, elm, chestnut, lime, willow and poplar.

Since specification in relation to curvature is not as strict as in American mills, friction-type barkers cannot be used. Following extensive trials in Sweden on English-grown wood, Cambio (Soderhamns Verkstader AB, Sweden) single-log barking units were installed, placing two machines in

series. Twin production lines maintain production.

According to L. Dewhirst of Sudbrook, "Our difficulties in this section are many, but our self-imposed wood length of 4 ft. has presented the greatest. This is the minimum the Cambio will take, and it requires a great deal of thought in feeding these short logs to the machine. We have solved the problem by placing paddle-type diablo rolls before and after the actual spiked feed rolls. These (diablo) rolls have provided extra fulcrums for the logs passing through the machine."

Approximately 300 rpm is the speed at which the barking tools rotate; logs are driven through the unit at a lineal

speed of 100 ft. per minute.

Because some species (notably ash with its thin bark) become almost impossible to handle on drying, wood is debarked as green as possible. Some species (lime, elm and chestnut) are not successfully barked on the first run-through because of their stringy barks. By passing them through the second stage, however, 100% removal is usually accomplished.

The 10-knife Ottersland chipper (by Karlstads Mekaniska Werkstad, Sweden) has a disc diameter of 6 ft. Maximum log diameter is 12 in. Rotation is at 500 rpm with a 350-hp power supply.

Capacity of the Soderhamns chip screen is 3,200 cu. ft. per hr. The ¾-in. chips are stored in a three-compartment silo with a capacity of 350 tons.

Kamyr System: Larger than Original Plan

A Kamyr continuous digester system is used at Sudbrook. Other factors involved in choosing the 7-day per week equipment for the mill included: Capital cost, labor requirements and simplicity of layout. A larger unit than called for in original plans was chosen, and hence it is believed that ultimate plant capacity might approximate 35,000 tons bleached pulp. The Kamyr system is essentially straightforward.

The mild steel vessel lined with 316 stainless is 8 ft. 6 in. in diameter, 55

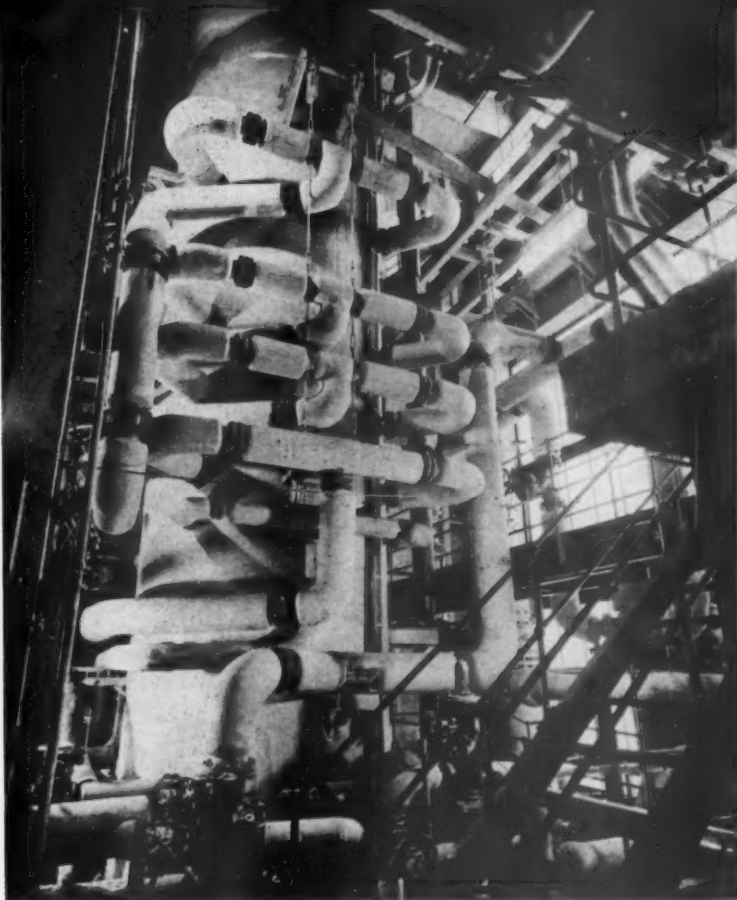
ft. high, has capacity of 3,300 cu. ft.

A small chip hopper above the conventional steaming vessel has a 2-hr. production capacity and is fed automatically from the silo. Chips are measured volumetrically through a star feeder, the speed of which is regulated from a control panel. Following a further check by a weightometer, chips go to a low-pressure feeder that separates the atmospheric pressure of the hopper from the low-pressure system of the steaming vessel, which is under 15 lbs.

Chips fall down into the vertical pockets of the rotating feeder and are flushed to the top of the digester when the pockets are horizontal. Liquor from the top circulation is drawn from behind a cylindrical screen.

A screen is also installed in the chute above the high-pressure feeder, and liquor is circulated through the screen and drains from the bottom of the feeder to a further pump, which takes circulation back to chip chute.

A constant-head tank receives the cooking liquor at a controlled flow commensurate to the chip feed. Next in line is a two-stage high-pressure pump, which, in addition to pumping



MAXIMUM TEMPERATURES IN DIGESTER TOWER is 350° F. Time of passage through Kamyr units is about 4 hrs.

liquor to the digester, controls the operating pressure of the system. A level control on the tank ensures that make-up water is fed to the pump to maintain uniform digester pressure. Cold water is used. Overflow from chip chute circulation is also fed to the tank, producing a further source of make-up water.

Heating System

From behind screens at the center of the digester, liquor is passed through a heat exchanger and recirculated into the body of the digester. The screens are divided into two sections to prevent plugging. Each section is equipped with a time cycle controller butterfly valve. Although the mill has two separate cooking systems, the bottom screens alone (longer impregnation, shorter cooking) are currently in use.

Extraction

Part of the liquor is withdrawn at a strainer. It is recirculated to the base of the digester to help flush the down-flowing cooked chips. A paddle agitator in the strainer has a dual purpose: (1) to control stock consistency, and (2) to help keep the face of the blow hole clean.

Again quoting Mr. Dewhirst: "From the strainer the chips are expanded through a small orifice into the blow line. The size of the orifice is variable, but for the present production we use approximately 20 × 25 mm. The blow line is 1½-in. dia., expanding to 2½-in. dia. up to a small blow tank. Just before the blow tank, we split the 2½-in. line into a 2-in. "T" junction feeding diametrically opposite sides of the blow tank, each feed supplying chips to two Sprout-Wal-

dron refiners operating in parallel.

Operational Problems

With installation of the new and different (Kamyr) system snags to smooth operation were expected. These—all solved in early production included:

(1) Need for additional training; (2) hard water, for which a lime soda treatment plant was installed; (3) chip size (the fines problem), for which the slots in the chip chute screens and the top screen are to be cut down in size to 1½ mm.; (4) "banging"—or water hammer—caused by such conditions as liberated carbon dioxide from the buffer, extremely high top circulation temperature coupled with low steam pressure in the chip chute and steaming vessel and air not continuously vented; (5) inefficient operation of the strainer at the bottom of the digester, for which cold water has been injected to the base in addition to the bottom circulation—cooling the pulp from 165°C to 125°C; (6) "hanging," when the chip column does not move down the digester uniformly, and (7) mechanical snags such as trouble from pipework and instruments caused by the banging.

"Apart from this," Mr. Dewhirst declared, "it is fair to say that the system has operated extremely well considering that this is the only wood-pulp mill now active in the United Kingdom, and that all the operators had never been inside one before."

Brown Stock Washing, Screening

Refined stock is passed to a small chest, diluted to 1% and pumped to the first brown stock washer. It is washed free of black liquor, diluted to 0.75% and dropped into a small buffer chest. From here, it is pumped to 12-in. cyclones, four in the first stage and one in the second stage. Accepts pass to Black-Clawson Selectifiers, then to a further brown stock washer acting as a concentrator passing the stock into the unbleached storage chests. Rejects are fed to a small chest, from where they are returned to the Sprout-Waldron refiners.

Conventional three-stage bleaching consists of chlorine, alkali extraction and calcium hypochlorite.

Wet Machine Drying: Up to 50%

For shipment, pulp is dried to 50%. Stocks of pulp for shipment are carried to Sudbrook; the paper mills draw on this stockpile when needed.

First stage of the Kamyr wet machine is a vacuum mold drum with

two pneumatic press rolls. The pulp web is couched off the drum at about 27% dryness to the first press rolls. Dryness is increased to 37% after pressing. Boosting the efficiency of the second press, rolls the web is passed

around a large M.G. cylinder. Pulp dryness is then 48-50%.

Sheet Divided

The pulp sheet drops 8 ft., passes around a lead roll into the horizontal plane, where three slitter knives divide the sheet in equal sections. Stacked sheets are cut to required

... Britain's NSSC Pulp Mill at Sudbrook

length by two rotating fly knives. An accelerator conveyor speeds the sheets to a layboy, where a bale is formed. Bales are pressed, after which wrapping paper and baling wires are applied for either shipment or storage.

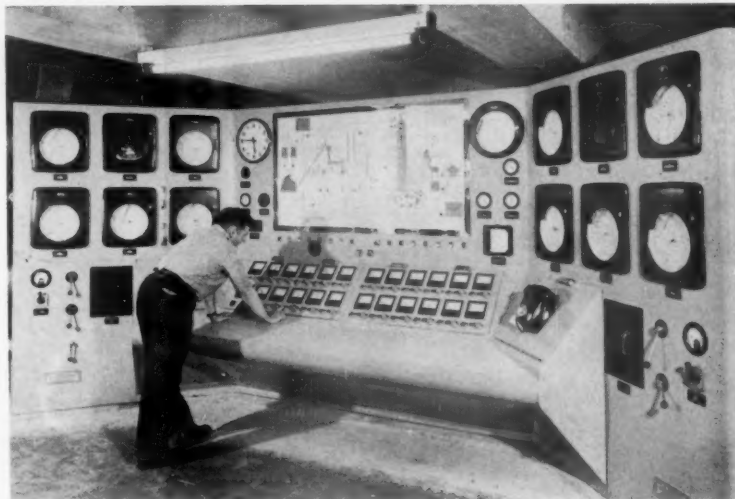
Chemical Preparation

Chemical preparation is simple: (1) Anhydrous sodium sulfite is purchased as a by-product of phenol production; it is approximately 95% pure and is dissolved with sodium carbonate in a batch tank. (2) Caustic soda is purchased as a 46% solution and diluted batchwise to 10% for bleaching. (3) Chlorine is discharged direct from rail tank cars to an evaporator. (4) For calcium hypochlorite, hydrated lime is slurried and chlorinated as a batch process.

Underground Stream

Water is pumped from an underground stream approximately a quarter mile to the mill. A lime soda plant treats that portion that is used in the digester section.

Two Lancashire boilers have a total generating capacity of 25,000 lbs. steam per hour at 200 lbs. per sq.



ONE MAN CONTROLS ENTIRE OPERATION from instrument panel. Indicator lamps on the Foxboro-Yoxall installation are mounted on a diagrammatic flow sheet.

inch. Bark is burned to produce approximately 4,000-5,000 lbs. per hour at 25 psi, from which all hot water requirements are produced.

Electric Power

Electric power is taken from the National Grid at 11,000 volts and transformed to 415 volts for mill use.

Men Important to the Wiggins Teape Organization



LESLIE W. FARROW, C.B.E., board chairman of Wiggins Teape.



T. H. FRANKEL, director, Wiggins Teape, headed Sudbrook project.



G. B. C. JOHNSTON, joint vice chairman of Wiggins Teape.



Watson Talbot

In middle, facing camera, is J. A. C. Talbot, a vice chairman of Wiggins Teape who heads all manufacturing operations. He is visiting with William R. M. Watson, head of British Paper Makers Assn. who is at the left of this picture.

Primary goal of Wiggins Teape has been to make England independent of imports in many paper grades and to compete successfully with the papermakers of the world in overseas markets.

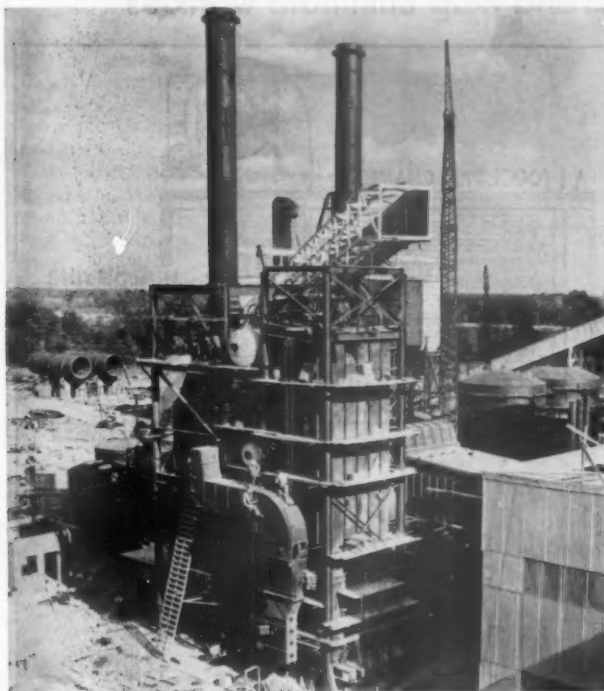
The "spark of pioneers" has fired

forethought and careful planing in construction of glassine and grease-proof mills; installation of new machines at the Glory Mill for production of photographic base papers; at the Chartham Mill (natural tracing papers); at the Bridgend Mills (tis-

sues), and at the Dartford Mill, where 180-in. No. 6 is in full production.

Reducing Cost of Steam Generation

... is one of the few choices still open to the pulp and paper industry in the face of rising prices for coal, oil and gas



TREND is to outdoor boiler plants in the South. Fuel can be either bark or coal. Shown is bark-burning boiler plant of Owens - Illinois at Valdosta, Ga. (Photo courtesy Combustion Engineering Co.)

By GREGORY GOULD*

● Promised advances in fuel prices can skyrocket costs in the manufacture of pulp and paperboard unless management takes a good look at its steam generating facilities.

Producers of coal, oil and gas predict substantial price boosts in the months ahead because of increasing production costs. Users of fuel must at the same time reduce the cost of steam generation. Such reduction need be neither difficult nor expensive if the controlling factors are examined.

Five major checkpoints used as a guide in setting up fuel purchasing policy can and will reduce costs:

1. **Selection.** Vital is a review of fuel specifications required by particular boiler equipment and steam load capacities. Overly restrictive specifications increase fuel costs needlessly.

2. **Specification Buying.** Steam generating cost is directly related to fuel analysis. Fuels' most important char-

acteristics include: (for oil) Btu, heating value, gravity, viscosity, bottom sediment, sulfur content, moisture; and (for coal) Btu, ash, volatile matter, ash-softening temperature, grindability. For consistent size, screen test samples must be made constantly on pulverized coal.

3. **Sampling and Analysis.** To assume that any fuel will always react uniformly in combustion is dangerous and expensive. The best way to make certain that fuel meets purchase specifications is to take samples frequently: for every 20 cars of coal and for every 100,000 gals. oil.

4. **Using the Competition.** Even though a plant may be functioning well with a particular supply source, it is wise to be aware of other sources.

5. **Coordinating Boiler Plant Performance.** If a feedback system whereby performance data is given to purchasing is not in operation, one should be started immediately.

There are other ways of cutting down fuel costs. When coal is being wasted, it leaves a trail. It may be in

high stack temperature and low percentage of carbon dioxide. High stack temperature results from too much air, dirty heating surfaces inside the boiler and excessive overfire draft.

Low carbon dioxide, always a sign of improper combustion, results from too much draft or not enough air for complete burning.

Unnecessary losses from burning heavy oil can also be traced to too much or too little air.

Low firebox temperature results from long "off" periods instead of balanced long "on" and short "off" cycles. Low temperatures of oil going into combustion can also cause low firebox temperature.

Coal needs about 18 lbs. fresh outside air per hour for efficient combustion. Efficient burning of 50 gals. oil per hour requires 6,800 lbs. air per hour, or 90,000 cu. ft.

Checks for Accuracy

Coal-fired plants may be either stoker-fired or fired by pulverized coal. Extension grate dampers if not properly controlled in an under-feed stoker will cause a thinning of the fire and allow large quantities of excess air to enter, with a resulting drop in efficiency. Similarly, admission of too much over-fire air will produce the same wasteful result.

Pulverized coal-burning plants produce low efficiencies and capacities when air-cooled furnace walls are slagged over and closed. The size of pulverized coal is important to efficient operation. It should screen-test the following size: (1) 65% to 85% through a 200-mesh screen. (2) 98% through a 50-mesh screen.

If the coal is too coarse, it will not burn in suspension and will be carried through the boiler and stack as unburned fuel.

All properly instrumented plants reveal lack of proper air control by a low reading on the carbon dioxide meter.

These meters should be occasionally checked for accuracy. Otherwise, they do not reveal true combustion conditions within the boiler.

Efficiencies from 70% to 85% (depending on age and type of equipment) should be the goal. Management should know the optimum efficiency of its plant and expect this to be achieved consistently.

*President, Fuel Engineering Co., New York, N. Y.

How Web Conditioners Work

Howard Smith Paper Mills uses two different units to restore desired moisture content to various grades and help eliminate wrinkles

● To minimize moisture content variations across the web, it is sometimes necessary to overdry the sheet on the paper machine and return moisture to the proper level at some later operation. Atmospheric conditions affect the moisture content of paper, either during storage or in converting operations. Paper may require high moisture if it is destined for shipment to a damp climate or for use in certain special processes. Moisture can be added to the sheet after it comes off the paper machine.

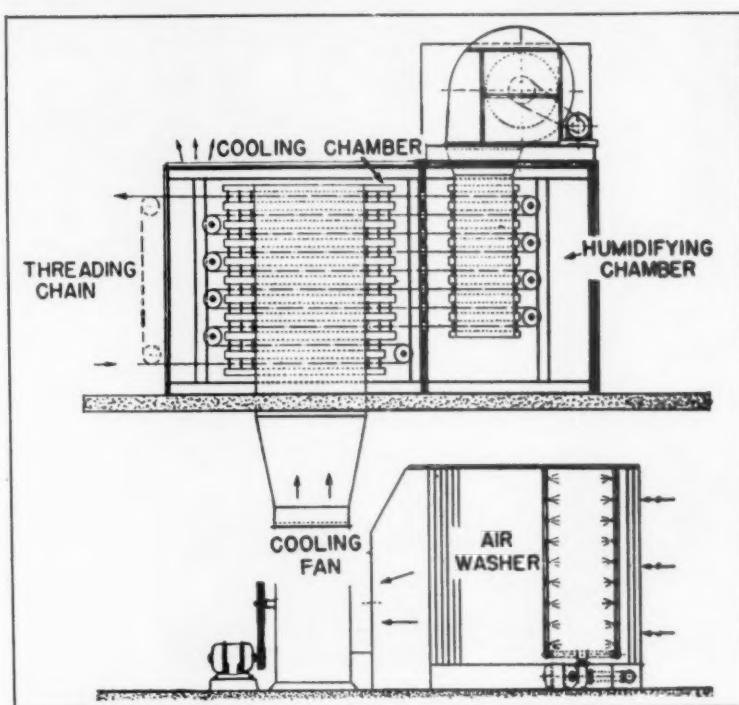
At Howard Smith Paper Mills Ltd., Cornwall, Ontario, necessary moisture has been successfully achieved for the past 21 years by using a cycle conditioner, supplied by Ross Engineering of Canada, Ltd., a subsidiary of Midland-Ross Corp.

While the normal machine drying of paper is attained at a moisture level of approximately 4% to 5%, the Ross cycle conditioner reaches the 6% to 7% moisture level that may be required by the end-use of certain Howard Smith papers.

Basically, the Ross cycle conditioner consists of two adjoining chambers (see diagram), separated by a partition with slots, to allow the paper web to pass from one chamber to the other. In the cooling chamber, an atmosphere of cool, high-humidity air is maintained. In the conditioning chamber, an atmosphere of warm, humid air is maintained under definite temperature and humidity control.

The paper first enters the cooling chamber, where it is thoroughly and evenly cooled. It then passes into the conditioning chamber, where its temperature is raised, while absorbing a certain amount of moisture. The sheet then returns to the cooling chamber and travels, again, into the conditioning chamber. This cycle continues until the moisture desired is reached. The amount of moisture absorbed will depend upon the temperature and humidity in the conditioning chamber, and the number of cycles, ordinarily not more than six.

Since the entering paper is cooler than the dew point temperature of the enclosure, moisture pick-up in the conditioning chamber occurs. Almost immediately, moisture condenses on the surface of the paper. At the same



CYCLE CONDITIONER uses cooling and conditioning chambers to restore moisture content to web. In cooling chamber web is thoroughly and evenly cooled. In conditioning chamber temperature is raised while web absorbs a certain amount of moisture.

time, if the air is supplied with good circulation and impingement, the temperature of the sheet will be brought up close to the dew point temperature of the chamber.

Passing back to the cooling chamber, the paper passes through an atmosphere of cool, high humidity air to avoid evaporation and to prepare it for re-introduction to the conditioning chamber and another deposit of moisture.

In the final pass, the paper goes through the cooling chamber, so that it may be wound up thoroughly and evenly cooled with the required moisture content.

The two atmospheres, or the differential between them, are maintained by a dual controller that records both wet and dry bulb temperatures. This assures that conditions in the conditioning chamber will be constant to the cooling chamber temperature, and

allows for records to be retained of all runs.

The cooling apparatus consists of a capillary air washer, using well or river water, while conditioning air is maintained by heating coils and a steam spray in the conditioning supply system.

A threading rig carries the leading end of any new run through the conditioner. The air supply is automatically halted, when the paper is stopped.

Installed in the early part of 1939, the Ross cycle conditioner at Howard Smith was designed to condition book, bond, offset and lithograph paper, raising the moisture content in an 80 lb. sheet by approximately 2% at a speed of 300 fpm with the understanding that a lesser amount of moisture could be added under control, if desired.

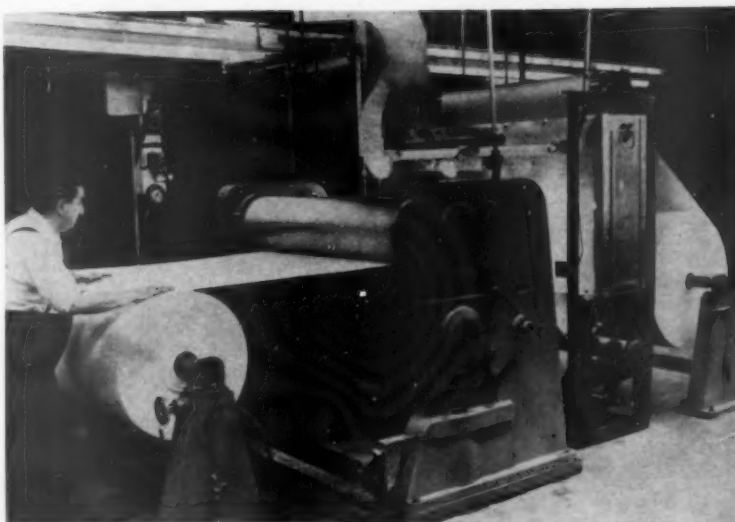
Shortly after its installation, the

unit was running at 450 fpm, and adding approximately 1½%, the amount required at the time by Howard Smith Mills. Subsequently, it was shown that on supercalendered book paper operating at 450 fpm, 2½% was being added.

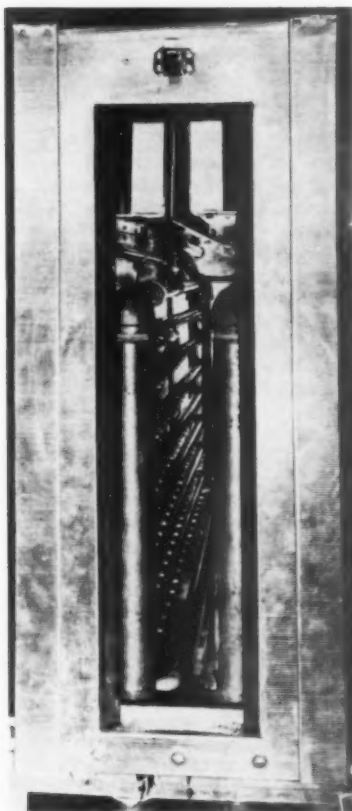
The unit is now being used on a variety of grades at speeds of 125-450 fpm, depending on the weight of stock.

Several similar units at other locations are also in fulltime operation, adding as much as 5% moisture to a 23 lb. per 1,000 sq. ft. stock at about 500 fpm. To date, units have been built for widths of from 45 to 100 in.

Among some new equipment installed at Howard Smith is an embosser in the finishing building to produce the company's complete line of leather, pin weave, ripple, homespun, handmade, fine linen and coarse linen embossings. To take some of the load off the cycle conditioner, a Ross Avisco web conditioner was installed between the unwinder and the embosser and allows for conditioning and embossing in a single operation.



VERTICAL WEB CONDITIONER, the Ross Avisco unit, has insulated aluminum enclosure with internal heating coils. A saturated atmosphere is kept by stainless steel spray nozzles, which can be controlled to apply moisture on one or both sides of the web.



HEATING COILS and steam nozzles can be seen, looking through access doors of Ross Avisco web conditioner at Howard Smith Paper Mills, Ltd.

This web conditioner is a vertical unit, which can accommodate a 55 in. web. The unit has an insulated aluminum enclosure, equipped with internal heating coils, to prevent condensation and dripping within the cabinet. A saturated atmosphere is maintained within the enclosure by stainless steel steam spray nozzles, which may be controlled to apply moisture to either or both sides of the travelling web. The unit is equipped with an exhaust blower to prevent vapors from escaping into the plant area. An automatic pneumatic control system shuts off steam to the spray headers, when processing machinery is stopped.

Threading is accomplished by attaching a weight to the paper tail, dropping it through the top slot, and out the bottom. On one side of the chamber is an insulated access door for threading and convenient maintenance.

Steam pressure in the heating coils is kept at 20-30 psi, while pressure at the spray nozzles is 2-10 psi, depending upon requirements and type of paper.

At Howard Smith, the web conditioner is generally operated at speeds of 400-1200 fpm, although some runs have been made at 2000 fpm.

Cover, offset, stationery and bond stocks with a weight range of 32 to 140 lbs. are processed with an average moisture increase of 1½%. On a 47 lb. (22 x 34/500) stationery stock, operating at 1,000 fpm, a pick-up as high as 2.7% has been recorded.

Where paper is brought in at a

sufficiently high moisture level, or where additional embossing stages are required, without further conditioning, the unit may be shut off and bypassed.

Operators at Howard Smith also report that the conditioner has helped eliminate longitudinal wrinkles, which might occur in the sheet prior to embossing.

The danger of shocks, due to static electricity, caused by a dry sheet rubbing against metal surfaces, has also been significantly reduced.

Career Guidance Committee Begins Education Review

An industry-wide education status review has been launched by the Paper Industry Career Guidance Committee with the mailing of more than 1,000 questionnaires to pulp, paper and paperboard manufacturers and converters in the United States. Purpose of the survey is to determine how many college graduates are now employed in the industry and how many will be needed in the next five years.

The Paper Industry Career Guidance Committee was organized in Sept. 1959 and united manufacturers, suppliers and merchants together for the first time. Cooperating are the American Paper & Pulp Assn., National Paperboard Assn., National Paper Trade Assn., Paper Industry Management Assn., and TAPPI. The group provides a central organization in which the whole industry can develop a unified career guidance program.

PIMA Meets on West Coast

National meeting ponders prospects of industry in the Sixties, gives top billing to raw product wood supply situation

By LOUIS H. BLACKERBY
Editor for Far Western States

● The long and short term promise for the paper industry were featured at the 41st Annual meeting of Paper Industry Management Assn. in San Francisco last June. More than 675 members and their wives attended the industry's first national meeting on the West Coast. For many, it was their first look at the rapidly growing West Coast pulp and paper industry.

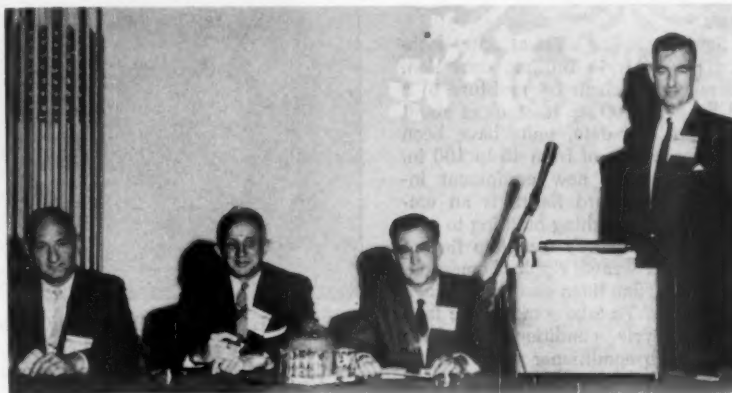
The theme of the convention was the paper industry in orbit for the Sixties and this theme was developed throughout the three day meeting. Reports of achievements, some already here, some in the making, reflected confidence in the long range prospects of the industry.

The raw product wood supply situation won top program billing. In addition to disclosing how far integrated forest products industries have gone in using harvested wood, progress reports were made on what is now being done to improve future forest crops.

Tom S. Coldewey, vice president, St. Joe Paper Co., is the new PIMA president. C. Ives Gehring, manager, pulp and paper division, Sealright-Oswego Falls Corp., is first vice president. Second vice pres. is Bemis P. Wood, general supt., Strathmore Paper Co. Glen T. Renegar, production manager, Container Corp. of America, is third vice pres. Lawrence W. Murtfeldt, mill manager, Consolidated Water Power & Paper Co., is fourth vice pres. and Robert O. Stephenson, production manager, The Champion Paper & Fibre Co., is No. 5. Richard McKay, vice president, Holyoke Wire Cloth Co., is the new industrial affiliates chairman. Three vice chairmen are Dean H. Brosche, Corn Products Sales Co.; Wayne Crannell, Patton Mfg. Co.; and Alfred M. Hartley Jr., Nopco Chemical Co.

Improving Future Forest Crops

W. D. Hagenstein, exec. vice pres., Industrial Forestry Assn., Portland, Ore. reported on tree improvement work currently carried on by his organization. As opening speaker of the general session he pointed out that this forest betterment program is probably the longest term research



Ingalls Hubin King Hagenstein

GENERAL CONFERENCE. Starting session featured basics of prime significance to entire industry, including better trees through genetics by W. D. Hagenstein, Industrial Forestry Assn., Portland, Ore., mill standards by E. G. Ingalls, Fibreboard Paper Products Corp., San Francisco, leadership training by Royce Hubin, General Electric Co., San Jose, Calif. Glen D. King, of Crown Zellerbach Corp., West Linn, Ore. and chmn. of Pac. Coast Div., presided.

and development project now undertaken by American business.

He emphasized that improved trees and better forestry are ways to get the most out of the nation's forest land resources. "Science has done a remarkable job in developing thousands of new uses for the dead, unchanging raw materials of petroleum and minerals. It has done much less for the living and replaceable raw material represented by our hundreds of useful tree species. Our industry has one story which surpasses that of all our competitors, the replaceability of our raw material," Mr. Hagenstein stated. "Tree farms are storehouses of perpetual supplies of raw material for pulp, paper, lumber, pulpwood and thousands of other important commodities.

"Because of the unique replaceability of trees, their improvement through application of genetics is a must if we are to use fully the potential of our shrinking forest land base." He sees "planned parenthood through genetics," as the solution.

Comprised of land-owning memberships throughout the Douglas fir region, the Industrial Forestry Assn. started its tree improvement program in 1954. Its goal: A source of better seed for the IFA nursery which

grows 10 million trees annually for reforestation members' tree farms; a source of high-evaluation seed which is in short supply; the development of tree strains which will survive adverse conditions, produce prolific seed crops, resist insects and disease and provide improved wood for industry products.

Industry foresters have searched the region's 25 million acres of forests for the best individual trees. During the past 6 years, 152 have been selected. Twigs obtained from these specimens were grafted onto nursery root stock and planted in seed orchards. IFA now has three such orchards and nine more have been established by individual member firms. All are dedicated to growing seeds from which will come future generations of better trees for industry.

Maximum Wood Utilization

Practical aspects of "stretching" the existing, available wood supplies were presented by Owen W. Bentley, mgr., Columbia River wood supply, Crown Zellerbach Corp. The use of sawmill and veneer residue chips in the Pacific Northwest dates back to the 1920s. Since then this use expanded extensively, particularly during the past 10 years.

"Chip purchases," he reported, "necessarily begin at the consuming mill. Here the volume to be purchased, the unloading, storage and handling problems and, above all, standards of size and quality must be taken into account."

Objective specifications for chips are essential to a successful program. According to Mr. Bentley, "These are set to accord with the chips manufactured by the pulp mill itself so if we have more than one consuming mill to consider when we are out to buy chips, we must attempt to secure chips that can be used by any of our mills."

Sizes specified for chips in Crown Z mills are $\frac{1}{2}$ in. long for slab chips, $\frac{1}{4}$ in. for veneer chips. Tolerances provide for 5%, or less, over 1 in. long, 90%, or more, over $\frac{1}{4}$ and under 1 in., 5% or less under $\frac{1}{4}$ in. This standardization facilitates diverting chips, regardless of origin, to various plants without creating quality problems. Charred wood is not admissible, bark content is limited to 7 lbs. per unit and the chips must be made of sound, green wood.

Species segregation is encouraged by price differentials; straight hemlock and white fir chips command higher prices than Douglas fir chips or species mixtures.

As to why chips are purchased on weight basis instead of the 200 cu. ft. volume unit, Mr. Bentley explains that "Chips are commonly purchased loaded aboard rail cars, trucks, etc. Chips loaded into these conveyances can be measured at the source and again at the destination point. We soon discovered that a rail car or truck loaded to full visible capacity at the sawmill did not arrive at our plant with the same visible loading. Chips loosely piled into cars settled down as much as 2 ft. below the top of the car."

Crown Z adopted the 2,400 lbs. (bone dry unit) as its standard for chips by making tests involving stacked cords of wood. These were chipped and converted to dry-weight basis. Regardless of the transport method, CZ buys chips on a weight basis which is constant.

Chip Transportation

"In our experience," states Mr. Bentley, "the least expensive form of transportation is by rail where chips are blown into the car by high pressure systems. We find we can put 30% more chips into a car by blowing the chips into it with continuous car movement as compared with dropping the chips by gravity into the same car. Here, payment by weight compensates

Specialized panel sessions, held three at a time, cover individual production phases



Schnyder

Murtfeldt

Duncan

Keller

ONE PULP SESSION ranged from tunnel barkers, by A. P. Schnyder, Pulp & Paper Div., Lummus Co., New York, to chemical-human behavior, by E. P. Duncan, Hooker Chemical Corp., Tacoma, Wash., and chlorine dioxide bleaching, by T. D. Keller, Potlatch Forests Inc., Lewiston, Idaho. L. W. Murtfeldt (newly elected 4th vice pres. PIMA), Consolidated Water Power & Paper Co., Wisconsin Rapids, presided.



Coldewey

Loheed

Goff

Porter

CONVERTING SESSION, presided over by Chmn. Tom S. Coldewey, St. Joe Paper Co., Port St. Joe, Fla., (elected pres. of PIMA for ensuing year), and Moderator R. W. Loheed, of Chas. T. Main Inc., Boston, featured paper's "orbiting sixties" by James Goff, School of Packaging, Mich. State U., Lansing, and how to meet competition, by R. W. Porter, Paperboard Packaging, Chicago.



FINE PAPERS SECTION, chairmanned by Bemis P. Wood, Strathmore Paper Co., West Springfield, Mass. (elected 2nd vice pres. PIMA for coming year), included coverage on reproduction papers by B. Friedland, Eugene Dietzgen Co., Chicago, control of radioactive contamination, by R. W. Peters and H. W. Crouch, Eastman Kodak Co., Rochester, N.Y., and dryer felts and air currents by W. K. Metcalfe, J. O. Ross Engineering Div., New York.

... PIMA Meeting



Wilma Ostenson Murray Quigley Looker

PART OF PAPERBOARD SESSION'S many participants. Wet-end paper machine practices presentation was co-moderated by Gus Ostenson, Crown Zellerbach Corp., Antioch, Calif. and Keith Looker, Beloit Iron Works, Portland, Ore. Influences of stock consistency on web formation presented by J. H. Quigley, Crown Z, Antioch, Calif.; water removal discussed by Maurice Murray, Pulp-Paperboard Div., Weyerhaeuser Co., Springfield, Ore., and Delos Wilma, Longview Fibre Co., Longview, Wash. C. Ives Gehring, Sealright-Oswego Falls Corp., Fulton, N.Y. (new 1st vice pres. PIMA), was chmn. of paperboard group; C. R. P. Cash, Fibreboard Paper Products Corp., Antioch, Calif. was moderator of second panel section.



Lehman Bentley Murtfeldt Young

UTILIZATION OF WOOD LEFTOVERS was discussed by Chmn. L. W. Murtfeldt, Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis., and panelists O. W. Bentley, Crown Zellerbach Corp., Portland, Ore., C. E. Young, Weyerhaeuser Co., Tacoma, Wash., and J. W. Lehman, Utilization Sec., Forestry Relations, Tenn. Valley Authority, Norris, Tenn.



WAKE-EM-UP-BREAKFAST satire on Chinese papermaking by Waiting Room No. 7, newest chapter of International Brotherhood of Migratory Peddlars, gets meeting off to early start. Skit ended in grand finale necessitating outside assistance of experienced papermaker—Henry Dauterman (center), Longview Fibre Co., who was initiated as honorary member of IBMP.

the chip producer on an equitable basis.

"Where pulp mills in one area use the same railroad lines they should agree upon a common type of car to be used interchangeably between all mills. Unloading systems should be similar so the railroads are not required to furnish several different kinds of chip cars. Standardizing chip cars can save both the railroads and the pulp mills on construction and maintenance costs."

Prospects of By-product Chips

Behind the "explosive rise" in use of chips from mill residues lies an economic incentive of lower costs, according to Charles E. Young, economist for Weyerhaeuser Co., Tacoma, Wash. In discussing economic aspects of chips-from-residues, he pointed out that "the broad economic impact of chipping mill wastes has spread in many directions." It increased saw-mill profits. In many cases this has been the chief source of profit for specific mills during recent years.

As to the effects of such utilization, "the use of chips from mill waste has been equivalent to the addition of thousands of acres of well-stocked forest lands," states Mr. Young. "Each acre of timber harvested now supplies wood for pulp and paper as well as for lumber or plywood, and the acres that would otherwise have been harvested to supply pulp mills can be left growing.

"One interesting result of the growing use of millwood chips and logging residuals on the West Coast has been that the proportion of the total roundwood cut for pulp has actually declined in recent years, despite a considerable increase in pulp production and a stable-to-downward trend in lumber production in the region."

As long as chips from mill residues can be produced at lower cost than chips from cordwood or logs, they can be expected to be the first choice of supply, either for integrated producers or for buyers of market chips. There will probably continue to be a rising trend in chip demand in the future.

In the Northwest, stated the economist, where there is considerable potential to expand chip supply through improved debarking equipment, and where closing of the present price gap between millwood chips and cordwood chips would provide a powerful incentive to expand chip recovery, "it seems unlikely that the price of millwood chips will reach the cost of cordwood chips in the foreseeable future."

Mill Standards Aid Production

To boost production efficiency to its 100% theoretical limit, Fibreboard Paper Products Corp. appraises production on a new concept known in the Fibreboard organization as the "high standard," and presented at the national PIMA meeting by Eugene G. Ingalls, mgr.-mfg. standards and controls for board, San Francisco.

The term "mill standards," as used by Mr. Ingalls, was applied to variables of concern to production personnel. It includes such norms as safety, materials quality (at all stages from raw product to finished goods), crew size, formulation, equipment utilization, production rate, costs and others.

Fibreboard's "high standard" is developed by calculating the theoretical ultimate performance for a productive unit or cost center under idealized conditions. From this base of absolute top performance, reasonable but tight allowances are made for conditions which will arise in actual production.

"Now, merely by shifting our observation point," says Mr. Ingalls, "we have a much clearer view of what our actual performance should be. We have established a performance goal which is no longer tied to history. Rather we have one based upon capabilities of our tools of production."

Leadership Training

There are two prime ways for individual organizations to acquire leadership-trained personnel. Either train



W. R. Adams

employees within the company or hire those which have already been trained in other organizations, according to Mr. Royce Hubin, Atomic Energy Equipment Dept., General Electric Co., San Jose, Calif. Either way, leadership must be developed.

A successful personnel development program within a firm is dependent on an appropriate "climate," available development "tools" and the uses made of them. Management's attitude was singled out by Mr. Hubin as an important factor in successful employee development work. A climate conducive to development includes such factors as opportunity, recognition, delegation of responsibility and a fundamental democratic approach. The development "tools" may range from classroom courses to "management games." Presented in the proper

climate, all can contribute to the program's success.

Industry Benefits From One-Time "Threats"

W. R. Adams, president of St. Regis Paper Co., speaking at Industrial Affiliates luncheon, depicted healthy future of pulp-paper. Its defense-industry benefits come not from subsidy but because it occupies a "basic supplier position," he said. Under favorable conditions it can meet foreign competition anywhere. Once apparent threat to paper, TV has stimulated recognition of printing performance and has become "just another good customer." He forecast more economical use of forest productivity, development of new products, better forestry through science, increased wood utilization, continued industry growth.

More on Mergers

Editors Note: We feared when we published the merger list which accompanied the Urge to Merge feature in our July issue that there might be some omissions. There was. In trying to make sure that no small mergers went unnoticed, our compiler forgot about the biggest merger in Canada, that of MacMillan & Bloedel with Powell River to form MacMillan, Bloedel and Powell River Ltd. Naturally, it was called to our attention by Charles L. Shaw, P&P's Canadian director. We're sorry.

Revolutionary Pump-Refiner

German engineer is inventor of inclined rotor pump which achieves remarkable results with various fiber species

Lindau, W. Germany

● Some two years ago in West Berlin, Dipl.-Ing. Georg Neidl, an Austrian engineer, invented a machine of revolutionary concept. As is often the case with such creative acts, the first discovery betrayed no clue to the significance which the invention would so soon attain for the slurry, mash and pulp handling industries, especially in papermaking.

The invention is an inclined rotor pump which holds great promise in the processing of sugar cane bagasse, cotton linters, artificial silk and other fibers and chemical products.

With the increasing demands of modern technology, various kinds of pulp and pastes are being introduced in chemical, paper and other industries at such a rate that mastery of their manufacturing techniques can seldom keep pace.

In papermaking, for example, limitations are to be found in the simple fact that either pulps must be thinned sufficiently to allow them to be conveyed with pumps of conventional design, or the structure of their constituents is too tight and coarse to be reduced to the necessary fineness of fiber by ordinary methods. It was by



DIPL. ING. GEORG NEIDL: Inventor of the pump.

... Revolutionary Pump-Refiner

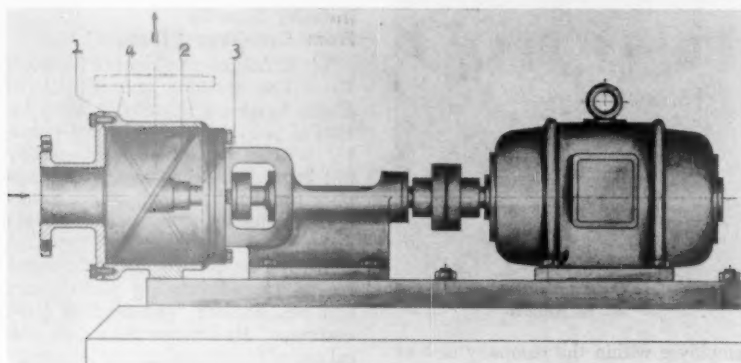


FIGURE 1: Revolutionary Pump-Refiner. Austrian engineer is inventor of inclined rotor pump which achieves remarkable results with various fiber species and chemicals.

no means always possible to produce clean material, or to shorten the fibers sufficiently, or to reduce them longitudinally. Limitations made themselves evident here; so much, in fact, that in the paper trades certain materials could not be satisfactorily processed.

It may be said that in the chemical industry such problems are even more far-reaching and more difficult of solution. Valuable materials are of great interest economically but must be rejected due to the impracticability of refining them further or of conveying them expediently.

Figure 1— How Rotor Pump Operates

In Figure 1 the basic idea and actual construction of the inclined rotor pump are illustrated. Within the pump casing, 1, there rotates a shaft, 3, to which an inclined disc, 2, is secured. The horizontal connection is the pump inlet or suction, while the

discharge connection is indicated by the broken lines. If we imagine an observer stationed in the top right corner of the pump chamber, the top right edge of the disc, 2, will be directly in front of him. If disc, 2, now rotates 180°, the formerly top right edge will now be in the bottom right corner of the pump chamber, while the former bottom left edge will be in the top left position.

It will therefore appear to our imaginary observer (with the shaft and disc assembly rotating at 1,000, 1,500 or 3,000 rpm) as if the disc is oscillating with lightning rapidity before him in the direction of the double-arrow. An optical illusion, of course. The edges of the disc actually change before him, but do so with such speed that the human eye cannot follow.

Figure 2— Positions of Rotating Disc

Figure 2 shows the various posi-

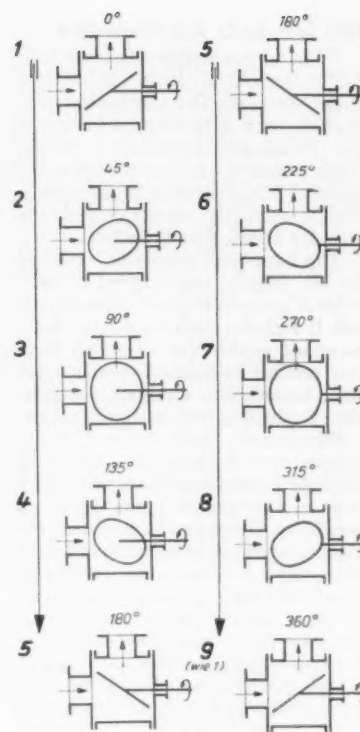


FIGURE 2: Positions of Rotating Disc

tions of the impeller disc in the course of its rotation. In this case, a circular disc is assumed, but an elliptical or other form may also be used. In views 1, 5 and 9 the impeller appears as a straight line, position 9 being identical with position 1. The shovelling effect with which the impeller conveys the material through the various positions from inlet to outlet is clearly evident.

The periphery of the disc is serrated like a circular saw blade as can be

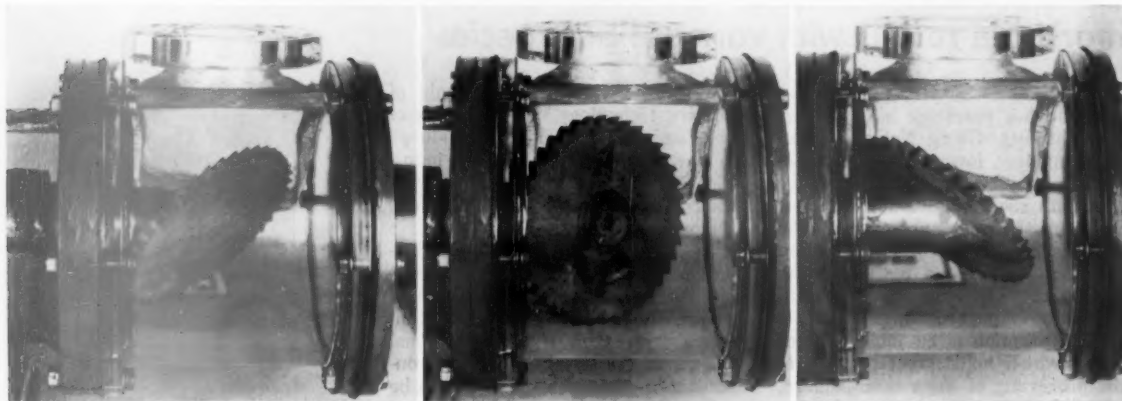


FIGURE 3: Positions of Impeller



FIGURE 4: A Large Model

seen in Figure 3 and other illustrations. Due to their inertia and sluggishness, heavy pulps are very thoroughly kneaded, filled and homogenized. Nor is that all. The material is simultaneously shredded by the teeth on the impeller periphery.

The machine is not only a homogenizer or mixer, but is also simultaneously a pump. It is reputedly the first machine to do this and has attracted much interest in Europe, where it is used in several industries.

Figure 3—
Positions of Impeller

To make it easier to visualize what goes on inside, a machine was built having a pump casing made of glass. This is shown in Figure 3, with the impeller in various positions. The suction connection is on the right, the discharge connection on top. The rotary action of the serrated circular disc is apparent.

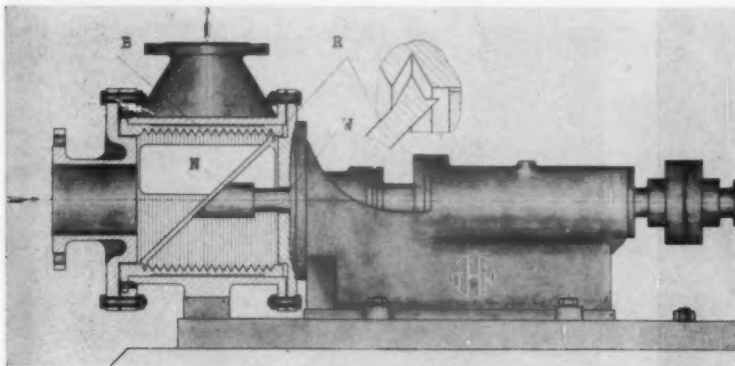


FIGURE 5: Improved Design of Pump

PULP & PAPER — August 1960

Figure 4—
A Large Model

These inclined rotor pumps (patented or patents pending in the U.S.A., Canada and other countries) are built both large and small. Figure 4, a large model, will be discussed later in connection with Figure 5. A very small model has a cylinder diameter of 3 inches and is used to recirculate fuels, dyes, pigments, food-stuffs, etc., for the purpose of refining their structure. After establishing the effect, the process is introduced in large-scale in heavier machines. For example, diesel oil is so thoroughly "kneaded" that a decided reduction in combustion residues results. Or, again, colloidal chocolate is suitably heated and recirculated and a much greater surface imparted to its bouquet molecules. The aroma and taste are improved. Paints and varnishes have a better covering power; molasses, that well-known by-product of

the sugar industry, becomes (and, what is more, remains) more fluid.

A 200 hp machine processes sugar cane. This pump, basically the same as Figure 1, is vertically mounted. Sugar cane or other material, such as bales of paper, etc., is thrown into the funnel at the top. The machine simultaneously crushes, homogenizes and discharges into wagons, trucks, or conveys the material for further processing.

Figures 5 & 6—
Improved Design of Pump

A considerable improvement in the effect is obtained with the design shown in Figure 5. In this model, the pump chamber is fitted with a bushing, B, or sleeve having radial grooves. The individual grooves are circumferentially parallel and not of screw thread form. The clear rectangle seen in the top portion of the pump chamber represents a slot in the bushing, B, through which the material is discharged in the direction of the top arrow. The toothed rotor, R, is secured obliquely to the shaft, W, at N. Each point on the rotor, and hence each tooth, rotates co-axially with the shaft, W. Each tooth runs in the corresponding groove of bushing, B. The effect is not easy to imagine and for this reason Figure 6 should be looked at closely. The gap in the bushing, B (corresponding to the clear rectangle in Figure 5) can be seen at the top of the pump chamber.

Figure 7—
Unusual Mixture Ratio

In Figure 7, 80 kg of paper plant cellulose were mixed with 80 liters of water, mixed, homogenized and pumped. This is a remarkable mixture ratio.



FIGURE 6 (note gap in bushing)

... Revolutionary Pump-Refiner

In yet another test, rubber latex was cold homogenized—that is, without any heating—to such an extent that it became and remained a viscous mass. The time required was about one-eighth of that formerly required.

In another operation, strong sisal cord was swelled with a little liquid and not only completely shredded, but also homogenized.

In many industries, new manufacturing methods, even completely new materials, have been discovered. A pump, similar to that in Figure 1, was built into a tank and pumped cement with water in a density hitherto considered impossible. This cement/water colloid was so fine that, after setting, a much higher strength than usual was obtained. The pump is also used on concrete mixing.

Considering Figure 5, it is not difficult to appreciate that the fineness of the product depends on the size of the teeth, R, the size of the grooves in the bushing, B, and on the gap between the teeth, R, and the grooves of bushing, B.

**Figure 8—
Combinations of Machines**

It is therefore a logical step to arrange several machines in series, one

in the form of Figure 7 and followed by two machines of the type shown in Figures 1, 4, or 5. This arrangement, of revolutionary significance for process engineering, is shown in Figure 8. Through the funnel of the first machine, for example, water-soaked nylon is introduced. For this purpose old wearing apparel and garments were used, indeed any man-made fibers of no further use, even reject stockings. The first, coarse-toothed, machine discharges horizontally into a second machine, while this in turn is connected to a third. The second machine is also of the horizontal discharge type and is thus directly connected to the suction of the third. The motor of the first machine is arranged below floor level.

It proved possible to produce a nylon wool so fine that paper could be produced from it.

Such material can also be used in making insulating panels.

To produce a ton of paper pulp, a little more or a little less than 2.5 kw/h are needed, depending upon the degree of fineness required. Using the arrangement of Figure 8, only one-tenth of this energy is consumed. The unit has a conveying capacity of 130 tons at 45 hp.

Cellulose handled by such machines

is no longer capable of swelling. Blood loses its clotting power. The structure of materials passing through these machines undergoes far-reaching changes. These machines are now operating in Europe where they may be inspected. The inclined rotor pumps are manufactured in Germany by Theodor Hoelscher-Maschinenfabrik, Uferstrasse 6, West Berlin N-65. The owner of the company is the pump inventor, Dipl.-Ing. Georg Neidl.—by Dr. H. M.—C.

Bibliography:

Neidl, "Abwasserpumpwerke" Kommunalwirtschaft No. 9, Sept. 1957; Deutscher Kommunal-Verlag GmbH, (Germany).

Neidl, "Bemerkenswerte neuere Erkenntnisse über die Schrägrotorpumpen" Chemiker-Zeitung No. 20, Oct. 1958; Dr. Alfred Hüthig-Verlag GmbH, Heidelberg (Germany).

"Schrägscheibenpumpen" Der Maschinenmarkt, Würzburg, No. 3, 1959, page 21 (Germany).

Neidl, "Schrägscheibenpumpen (Raubtierpumpen)" Industrieabwässer, Deutscher Kommunal-Verlag GmbH., Düsseldorf, Dorotheenstrasse 6, April 1959 (Germany).

Neidl, "Schrägscheibenpumpen" Österr. Abwasserrundschau, Vienna IV, Prinz-Eugen-Strasse 62, Vol. 3, 1959 (Austria).

Neidl, "Das Förderproblem in der Papierindustrie" Das Papier, No. 17/18, Sept. 1959, Eduard-Roether-Verlag, Darmstadt (Germany).

Neidl, "Inclined Rotor Pumps" in the journal "Pumping," Trade & Technical Press Ltd., Dec. 1959 (Great Britain).



FIGURE 7: Unusual Mixture Ratio

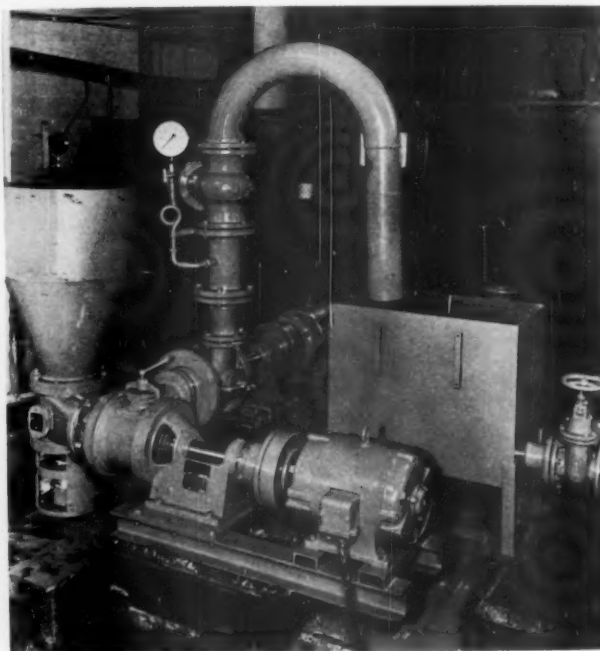
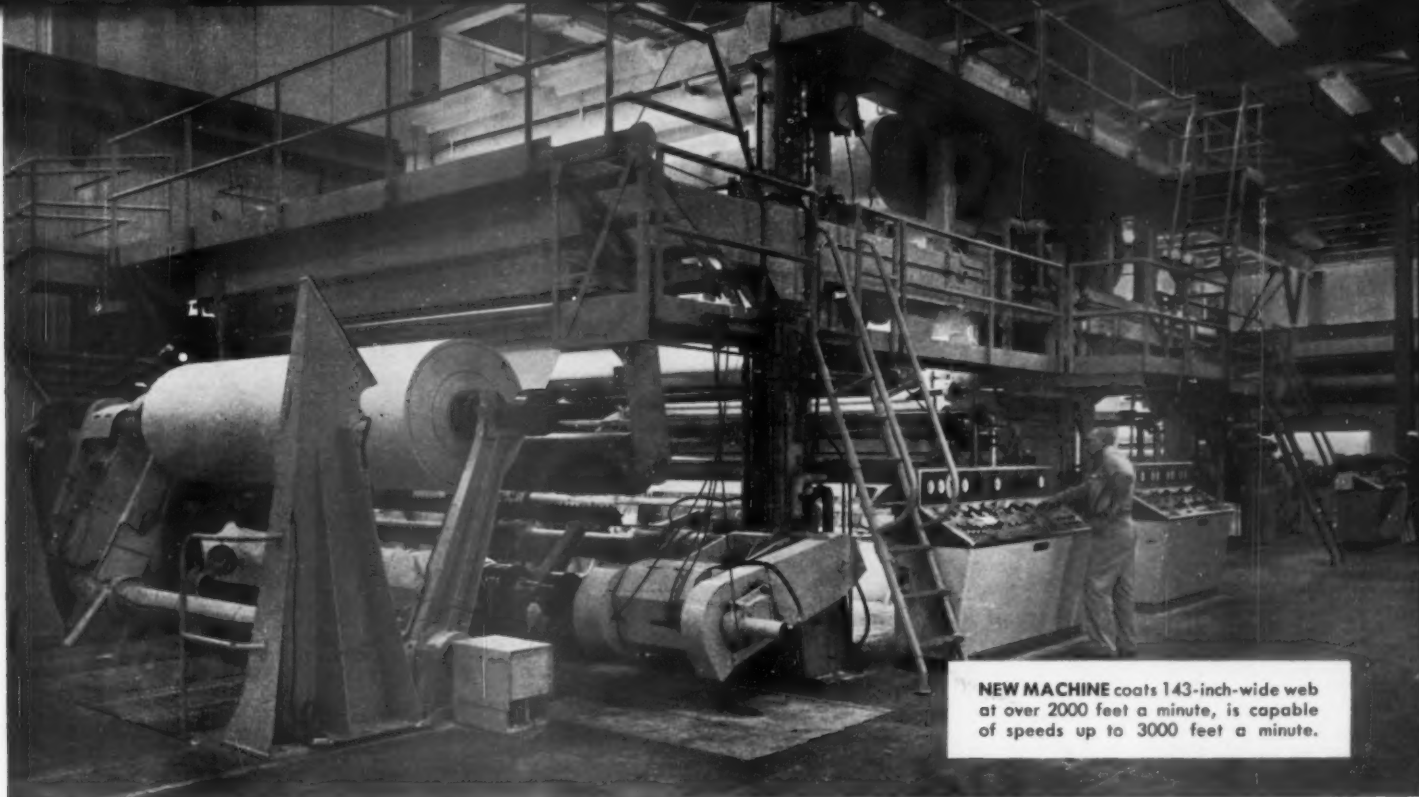


FIGURE 8: Combinations of Machines



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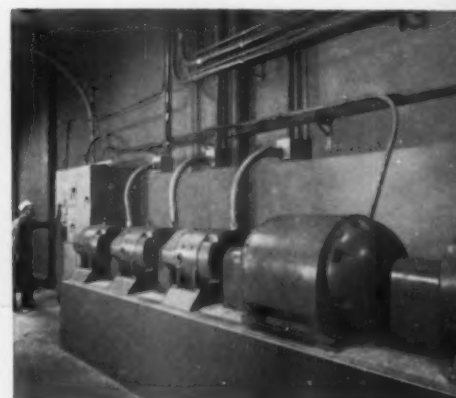
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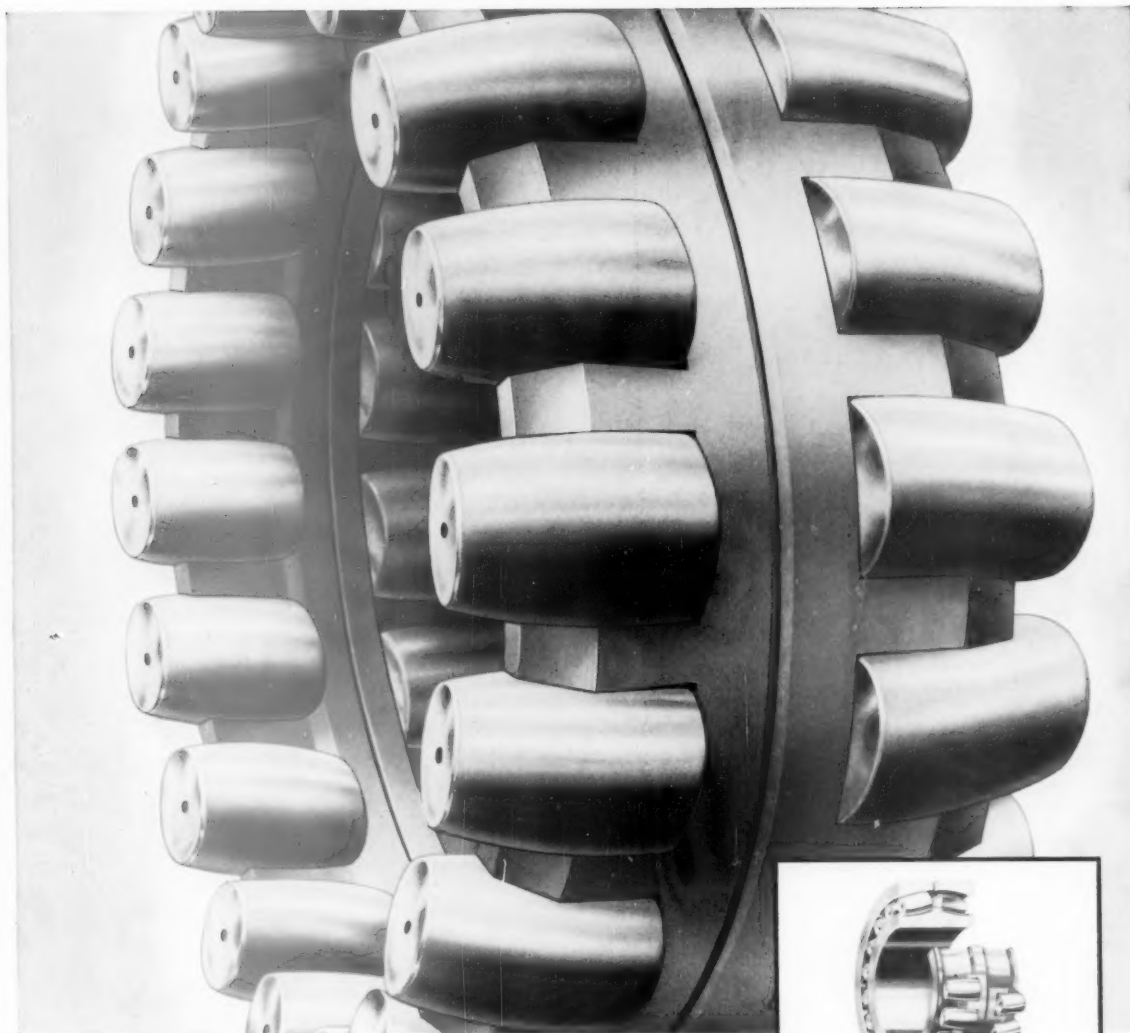
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**CHICAGO AND
NORTH WESTERN
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PIONEERING NEW PROSPERITY FOR AMERICA'S HEARTLAND

Southern Pulpwood Progress

APA discusses outside chip storage, new harvesting tools, status of pulpwood producers, quality analysis of purchased chips

• The pace of progress in the Southern pulpwood industry is so fast and on so many fronts that every once in a while the industry must stop to catch its breath and review the strides it has made. It did this recently at two regional meetings of the Southeastern and Southwestern Technical Committees of the American Pulpwood Assn. Some highlights of these meetings are discussed here.

Benefits of Outside Chip Storage

At least five areas of pulpwood production will benefit from outside chip storage: First, wood loss in storage will be reduced and perhaps even eliminated while pulping characteristics will remain favorable and in some cases improve. Second, some savings may result from a more efficient and businesslike operation of woodyards.

Third, substantial savings may stem from further stabilization of wood flow to mills, made possible by outside chip storage. Fourth, additional quantities of bark will be available for steam generation which would otherwise be lost in the mud of many yards. This additional bark may be sufficient in quantity to stimulate efforts to get more dollars out of bark than it now yields as fuel. Fifth, sufficient closer use of the harvest brought to the mill can also increase the man-day productivity of the woods labor force.

Sufficient test information is available to back up previous thoughts about the advantages of outside chip storage over rough roundwood storage with respect to wood deterioration.

One pulp mill researcher calculates the following dollar savings from outside pulpwood storage in chip form. At this mill, green wood furnishes a 49% pulp yield. Stored roundwood has a 45% yield. Figuring the cost of pulpwood at \$20/cord, this researcher divided the \$20 by the 49%, which then gave a value of 40.8¢ by a 4-

point loss in yield and gained a figure of \$1.63/cord (4 x 40.8¢) as a loss to be associated with storage of rough pulpwood. By multiplying \$1.63 by 1.8 cords per ton of pulp, the dollar difference between green and stored wood per ton is then calculated.

When the mill runs on stored wood entirely, the dollar volume loss per day, resulting from 4% loss in yield, becomes \$2.93 times 600 tons/day (daily capacity of the mill), which equals \$1758/day. The question is how much of this mill's annual wood consumption is stored in the yard and is thus subjected to this 4% yield loss. Comparative calculations tend to assume no yield loss if wood is stored in chip form.

To reach an estimated cost savings figure favoring the outside storage of pulpwood in chip form the accompanying calculations are made. Results are based on the assumption that the mill operates (on the average) 330 days a year, producing at 600 tons daily.

The estimated values reveal only some of the possible dollar savings with this chip storage program. Other savings seem possible, savings possibly still greater than these calculated. A large savings seems likely in the handling of chips in and out of storage. For that reason, cost estimates exploring the possible savings in handling wood fiber in the chip form over the present roundwood form command immediate consideration, says APA.

New Harvesting Tools

The Busch Combine developed by Tom N. Bush of International Paper Co. is 4-wheel drive, rubber tired tractor which can fell, delimb, buck, package and transport 5-ft. wood. Man-day production rates of 10 cords or more (stump to car) are the object of research on this unit.

In operation, a tree is felled and bucked, not with a chain saw but with a powerful hydraulic shear. Ground level stumps and the absence of sawdust provide an estimated wood fiber savings of 2% to 3% compared to conventional roundwood production. The tree is felled forward and parallel to the machine. A hydraulic arm picks up the butt and lays it on an infeed table. Here it is gripped by a spiked feed-pawl and advanced for cutting into 5-ft. bolts.

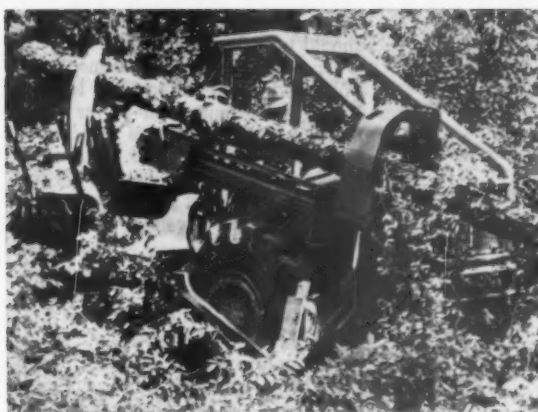
As each 5-ft. length is advanced, a unique belt of knife blades encircles the stem and delimbs. This delimbing belt adjusts to changing stem diameter. The shear is in a vertical position when bucking. The bolt falls into a 1-cord capacity cradle. When full, the package is dumped on end and held in this position until the pulpwood is contained by a light wire, paper cord or reusable steel strap which encircles the top of the package.

The Busch Combine is designed to travel at 30 mph on highways and can operate wherever conventional crawler tractors can go.

The Buschmaster, in contrast to the Busch Combine, is an all-purpose

Estimated Cost Savings of Outside Chip Storage vs Storage of Roundwood

| Total Time (Days in %) Mill Runs on Stored Wood | Dollar Loss Per Day | Annual Loss from Deterioration in Roundwood Storage |
|--|------------------------|---|
| 5% x 330 days = 16.5 | \$1758 | = \$ 29,007 |
| 10% x " " = 33.0 | \$1758 | = \$ 58,014 |
| 15% x " " = 49.5 | \$1758 | = \$ 87,021 |
| 20% x " " = 66.0 | \$1758 | = \$116,028 |
| 30% x " " = 99.0 | \$1758 | = \$174,042 |



DOES EVERYTHING BUT CHIP LOGS. The Busch Combine developed by Tom N. Busch of International Paper Co. fells, delimbs, bucks, packages and delivers 5-ft. wood. Unit can travel up to 30 mph on highways, can go where crawler tractors go.



ALL-PURPOSE FOREST MANAGEMENT TOOL is the Buschmaster. The rubber-tired tractor can be used for fire fighting, building and maintaining roads, earthmoving planting, site preparation, spraying and building fire lines.

forest management tool. The rubber-tired tractor boasts these applications: fire protection: a 550-gal. water supply, high pressure fogging, a fire plow for building fire lines, a flame-thrower for lighting back fires; construction and maintenance: a hydraulic bulldozer blade for road building and earth moving, a road maintenance blade for grading, and a one-yard panscraper for earth moving; forestation: a wheeled tractor for pulling tree planters, spray equipment for fertilizing plantations and protecting growing timber against insects and disease, equipment for controlled burning. The 4-wheel drive unit was built on a chassis perfected by Mr. Busch and is being built by Timberline Equipment Co. It is stated that one of these machines can protect and manage as much as 40,000 acres of Southern pine forest land. Cost for the fully equipped unit is in the range of \$35,000.

The Pope Timber Harvester was built and developed by St. Regis Paper Co. and the Northwestern Pulp & Power Ltd. The trail machine is mounted on the front of a medium-size crawler tractor. Its main design features are a fixed jaw, a sliding jaw on a track and a hydraulic chain saw. The tractor approaches a standing tree and grabs the tree with its main jaw. The saw then severs the tree from the stump. The unit has sufficient power to lower slowly a spruce tree towering 70 to 80 feet. Before lowering the tree, the tractor carries it to a bucking and piling area.

When bucking, the tree is held firmly by the main jaw. Delimbing is by the sliding jaws which slide toward the tree top. The tree is then advanced

the desired length and the hydraulically powered chain saw lowered to buck the tree. As the tree is pushed into bucking position by the delimbing jaw, the main jaws are held open. Trees can be bucked into any length and piled ready for loading. With minor changes, logs of any length can be produced by the harvester.

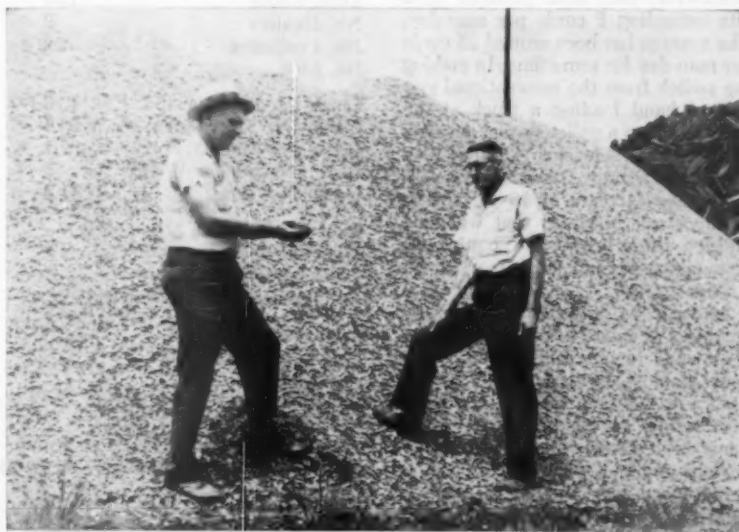
Pulpwood Truck Hoists

The \$400 pulpwood truck hoist can eliminate much costly manual yarding and loading of heavy pine and hardwood. Such a hoist can replace manpower costing \$2500/year. Lately, much equipment of this type

is seen in increasing numbers in the South.

Belt Drives For Tandem Axles

Interest in V-belt tandem drives for trucks is becoming keen in the South, especially for wet weather conditions. In Louisiana, for instance, one logging contractor has equipped two truck-trailer units with these drives. He cites these advantages: added traction on hills, slick surfaces, sandy roads and wet and muddy areas; pulleys on the driven and driving wheels are self-cleaning of mud; the extra axle permits heavier payloads and better flotation under adverse road conditions.



OUTSIDE CHIP STORAGE STUDIES have top priority in the South. Tests show pulping characteristics remain favorable, wood loss in storage is reduced and better stabilization of wood flow to mill can be achieved.

Pulpwood Section

Some drawbacks are: small matter does not always freely pass between the belt and the pulleys and tend to cause excessive lifting and wear on the belts; the dead axle must have a torque arm; application is not practical where the truck is not standard—a dead axle from a Chevrolet truck cannot be tied into a Ford-driven axle; and there cannot be more than 2-in. variation in load from center to center of driven and driving axles. A bogie axle which permits pivoting around a common trunnion solves this problem.

Costs of belts and pulleys is about \$360. In summary, the drive is advantageous for over-the-road use. In the woods, it has some of the same difficulties inherent in all tandem drives.

Another operator in Northwest Florida installed a V-belt tandem drive and had a trouble-free successful operation.

Pulpwood Producers

H. H. Flickinger, chairman of the Southeastern Technical Committee, discussed survey data collected by his company. This is the second series of producer surveys to be run. Some of the highlighted information revealed in both surveys is shown in the accompanying table.

Discussion

Crews using pallet systems in the Brunswick, Ga., area produce at a rate exceeding 2 cords per man-day. The average has been around 2½ cords per man-day for some time. In making the switch from the conventional system of hand loading a truck at the stump over to a pallet system employing a small tractor for skidding long lengths to a brow, one can expect a production increase of 30 to 50%. It is important, however, that wood be skidded to a brow, and equipment be available for unloading trucks with a sling.

Some 25 to 30 long-log pulpwood operators in one truck wood area deliver wood to one mill. These operations employ crawler tractors of the TD9 and D4 size, tractors equipped with sulkies for skidding tree-length stems to a brow where sorting into sawlogs and pulpwood takes place.

Pulpwood logs are cut to a maximum length of 20 ft. and are loaded by a simple gravity swing-boom loader. Size of timber and cut per acre has a great effect on the man-day rate of production of each individual

operation. Cut per acre varies from 2 to 25 cords.

Smaller tractors are frequently employed in bunching loads for the larger tractors equipped with sulkies. Producers are equipped with shuttle trailers, thereby assuring that a pre-loaded load is awaiting the returning truck-trailer unit.

Trailers are unloaded at the mill by a crane equipped with clamshell grapple. These 20-ft. pulpwood logs are then put through a slasher which converts them into 5-ft. bolts. These bolts go directly to the drum barkers. The average haul to the mill is 30 miles. There are some producers hauling as far as 75 miles.

Long-log operations carried out more than 10 years ago proved that they worked well when clear-cutting practice was permissible. In those days, production costs ranged between \$10 and \$12 a unit. When the switch was made to selective cut, these same logging costs immediately jumped to \$20 per unit. Therefore, if the trend in thinking goes back to the long-log logging concept, the harvesting practice of clear cutting must gain acceptance among foresters. The clear-cut

cultivate and plant concept of forestry should turn the trick.

One company has been transporting pulpwood to the mill in 15-ft. lengths. Truck-trailer units haul as far as 50 miles. Man-day rates of production vary between 3 to 5 cords. An average truck-trailer load will net 33,000 lbs. A larger load is not permissible under Virginia highway weight restrictions.

Present man-day rates of production can be improved if full tree-length stems are transported to the mill. Pulpwood trees should be at least 9 in. and up (dbh) for successful long-length pulpwood operations. From a production standpoint, the size of each individual tree is probably more important than volume per acre cut.

In many areas long-length operations have a better chance to compete on the open market than short wood. Long-length enables recovery of 10% more wood from an acre of land as compared with short-wood operations. The one fact that there is no loss from saw kerf accounts for a significant share of this increased percentage of recovery. The major problem in long-length operation is that of handling. Therefore, stick size becomes quite important.

A loading device must be perfected enabling the efficient handling of more than one stick at a time during trailer loading operations. To date, the

Georgetown, S. C., Producer Surveys

| | January, 1959 | | June, 1959 | |
|---------------------------------------|---------------------|----------------------|------------|--------------|
| | Most Efficient Yard | Least Efficient Yard | All Yards | All Yards |
| Total Cords | 933 | 1,563 | 17,910 | 16,235 |
| No. Dealers | 2 | 2 | 41 | |
| No. Producers | 22 | 75 | 649 | 679 |
| No. Men | | | 2,608 | 3,061 |
| Cords Per Producer | 42.3 | 20.1 | 27.6 | 23.91 |
| Cords Per Man Week | 10.5 | 5.9 | 6.9 | 5.3 |
| Cords Per Man Day* | 2.1 | 1.18 | 1.38 | 1.06 |
| Days Worked Per Week | 5 | 5 | 5 | 5 |
| Cords Per Truck | 41.4 | 18.4 | 22.7 | 20.21 |
| Men Per Truck | | | 3.3 | 4.81 |
| Men Per Crew | | | | 4.5 |
| Trucks Per Crew | | | | 1.1 |
| Tractors Per Crew (Crawler) | | | | .48 |
| Avg. Daily Prod. by Loading Technique | | | | |
| 1. Pallets | | | | 14.53 cds. |
| 2. Pulpwood Truck Hoist | | | | 11.30 cds. |
| 3. Pulpwood Truck Hoist | | | | 9.0-7.5 cds. |
| 4. Hand Loading Truck at Stump | | | | 8.0-5.1 cds. |
| 5. Hand Loading Truck (Tractor Skid) | | | | 7.2-5.2 cds. |
| Truck Age | | | | |
| 5 yrs. and newer | 95.2% | 42.1% | | |
| Older than 5 yrs. | 4.8% | 59.9% | | |

*Includes felling the tree, cutting into pulpwood length and carrying out all steps necessary to get wood loaded on cars or delivered to a mechanized yard.

tractor mounted Drott Skid-Loader seems to hold the greatest promise for success. Some crews equipped with conventional long-length logging equipment are averaging 4.8 to 5.3 cords per man-day in the Fargo, Ga., area. A select crew equipped with the latest mechanical handling equipment is averaging 6.19 cords per man-day. The ultimate goal is 10.0 cords per man-day (stump to mill).

Producers in the Southwest

Ardie Toler, International Paper Co., presented some data covering the production of pulpwood for I-P Mobile and Moss Point mills. Data for this survey was collected during a week in April, 1959. Pulpwood orders for the week, as well as production, were about normal. Data was collected from 28 rail and barge points uniformly scattered over the company's Gulf region of wood procurement, which comprises roughly the western two-thirds of Alabama and eastern half of Mississippi.

The survey covered operations of 50 pulpwood dealers and 778 pulpwood producers. Production during the week of the survey amounted to approximately 15,000 cords, of which approximately 1000 cords were produced and sold to other paper mills. Man-day and man-week production rates revealed by the survey are for the manpower used to cut, load, and haul this pulpwood to the mill or to a rail point of loading.

Here are the highlights of the week's survey: Cords per producer—19.28; cords per truck—15.94; cords per man-week—5.7; days worked per man during week—3.2; cords per eight-hour man-day—1.8; men per truck—2.8; men per crew—3.4; trucks per crew—1.2; saws per crew—1.4. Truck age: 76.5% were three years and older; 53.5% were five years and older; 10.1% were over ten years old.

The following information was developed through the survey:

Gulf Region Pulpwood Producer Survey (Period—Week of April 6, 1959)

| | |
|---------------------------------------|--------|
| Pulpwood produced during week (cords) | 15,000 |
| Pulpwood dealers covered | 50 |
| Pulpwood producers covered | 778 |
| a. Full-time producers | 520 |
| b. Part-time producers | 188 |
| c. Casual producers | 70 |
| d. White collar producers included | 140 |
| e. Working men in crews | 2,649 |
| f. Man-days worked during week | 8,471 |
| g. Dependents of crews | 10,815 |
| h. Dependents per man | 4.1 |

| | |
|---------------------------------|-----|
| Number of trucks and trailers | 941 |
| a. Bobtails | 844 |
| b. Tandems | 77 |
| c. Trailers | 17 |
| d. Trailers and pallets | 3 |
| e. Trucks equipped with loaders | 75 |

| | |
|---------------------|-----|
| Tractors used | 109 |
| a. Wheel tractors | 80 |
| b. Crawler tractors | 29 |

| | |
|---------------|----|
| Skidders used | 22 |
|---------------|----|

| | |
|--------------|-----|
| Animals used | 282 |
|--------------|-----|

| | |
|---------------|-------|
| Saws used | 1,067 |
| a. Chain saws | 933 |
| b. Wheel saws | 108 |
| c. Other | 26 |

| | |
|---|------|
| Pulpwood production averages (cords) | |
| a. Pulpwood production per producer during week | 19.2 |
| b. Pulpwood produced per man during week | 5.7 |
| c. Pulpwood produced per truck during week | 16.0 |
| d. Pulpwood produced per man-day during week | 1.8 |

| | |
|---------------------------------|-----|
| Men per crew | 3.4 |
| Days worked per man during week | 3.2 |
| Saws per crew | 1.4 |
| Truck per crew | 1.2 |

Age and number of trucks:
Model 1949, 95 (10.1%); '50, 83 (8.8%); '51, 69 (7.3%); '52, 87 (9.3%); '53, 78 (8.3%); '54, 91 (9.7%); '55, 104 (11.1%); '56, 112 (11.9%); '57, 87 (9.2%); '58, 82 (8.7%); '59, 53 (5.6%).
Total trucks 941.

Purchased Chips

A study of the quality analysis and chip classification procedures employed by member mills in the Southeastern region was called for at the 1959 Spring meeting of the APA Southeastern Technical Committee. J. A. Holekamp, regional forest engineer, circulated a questionnaire and received responses from ten member companies. His report follows:

Questions Asked

1. How does your company collect chip samples from each car and trailer, classify these chips, and make final chip analysis? Include coverage of methods for calculating bark percentage, dirt count, bruised chips, moisture content, etc. Please describe entire procedure from beginning to end.

2. What are the features about your procedure of chip analysis and classification which you and members of your company like best?

3. What are the features which you do not like and which you feel warrant improvement?

4. What are some ideas which you feel may help bring about a more accurate chip analysis and classification test.

Consolidated Results of Replies

1. Three of the ten companies first conduct a visual examination of each car and trailer, before unloading and before taking chip samples. If the scaler has the slightest doubt about chip quality, unloading is delayed until close quality checking is carried out.

2. Six of the ten companies take at least one grab sample as the car or trailer is being unloaded. Each sample usually is 10 to 15 lbs. Two companies take more than one grab sample during unloading. For example: when unloading each car, one company takes samples at five-minute intervals. Another takes a grab sample at the beginning, middle, and near the end of unloading.

3. Two companies make use of an automatic chip sampler located on the belt carrying chips from the pit where cars are unloaded.

4. Four companies mix chips taken from two or more cars or trailers coming from the same supplier. This composite is used for the chip analysis test. One company mixes as many as seven to eight cars coming from the same supplier before testing. Two others mix no more than four cars coming from the same supplier. One company composites all grab samples taken from trailer loads delivered by the same supplier in one day's time.

5. Six companies determine moisture content by the procedure outlined in TAPPI Standards.

6. Nine companies take bark percentage checks after first separating bark from chips manually. This is a costly and time-consuming procedure.

7. Nine companies employ the standard TAPPI procedures for classifying samples by chip size.

8. Three companies make payment to supplier based upon the results of chip quality analysis. Compensation is based upon a gradient scale of chip quality.

Criticize Sampling Procedures

The ten companies were dissatisfied with the present equipment and technique of chip analysis. The following complaints were made:

a. There is an excessive time lapse between taking of samples and the availability of test results. This interval varies from 24 hours to more than one month. Chips are frequently

converted into pulp and paper long before analysis reports are available.

b. Samples collected are seldom considered as representative.

c. Chip and bark quality analysis procedures seem time-consuming, costly, and laborious. Conventional laboratory testing equipment seems to be used almost exclusively.

Suggested Corrections

1. Three companies suggest the installation of a continuous chip sampling system to collect a representative sample. In turn, those companies who are now using continuous chip sampling system contend that they must tolerate a sampling system which fails to provide chip quality values before the car is unloaded.

2. Develop a core-drilling device which will correct the representative sample problem.

3. Develop special chip handling equipment and procedures which provide rapid chip analysis and information.

4. Limit testing time on the Williams Classifier to two minutes.

5. Check only for over-size chips

and sawdust.

6. Sample chips as they are manufactured. Require sawmillers to carry out a chip analysis of their own.

7. Work towards a rapid but sufficiently accurate chip sampling procedure which can give results before unloading.

8. Develop the necessary equipment and perfect the proper technique which can scale and grade chips in the same interval now experienced in scaling and grading pulpwood.

Some Observations

Quality analysis of purchased chips is at a beginning. Much work must be done before a suitable procedure of chip sampling and grading is available. There seems to be no uniform procedure among mills for measuring the quality of purchased chips.

There is evidence that the equipment and procedures now used are satisfactory for laboratory checking of a relatively small lot of mill manufactured chips. But use of this same equipment and these same procedures leaves much to be desired when grading the increasing quantities of pur-

chased chips now coming to Southern mills.

This present state may hinder efforts to furnish mills with a better raw material at a lower price. Without accurate testing, chip quality may drop appreciably. There is a need for the development of equipment enabling the rapid collection of a representative sample, the immediate analysis for quality and size, and the determination of bark content and moisture content. Such equipment would be expected to fulfill the following requirements: the time lapse between collecting chip scale and grading information and the availability of test results should not exceed time presently spent in scaling and grading an equivalent volume of roundwood.

Organize a special chip analysis project committee to consider and evaluate the grain drill auger idea for collecting a representative chip sample; the liquid flotation process of separating bark from chips; a technique which might speed up time now required to determine bark percentage.

This group should cooperate closely with mill technical departments and the manufacturers of scales and instruments in order to study the problem.

Moir Writes on the "Land War"

Editor: The current "war" between the National Park Service and the U.S. Forest Service, sparked by the Park Service's zeal to assume responsibility for the management of recreational activities within National Forests, is of public concern.

This action brings into focus the basic duty and responsibility of the Forest Service "to improve and protect the forest within the reservation or for the purpose of securing favorable conditions of water flows and to furnish a continuous supply of timber for the use and necessities of the citizens of the United States."

The people of the United States are primarily concerned with this "war" for they may become the victims of this feud in later years. There is general lack of awareness just what the charge of supplying a continuous supply of wood and water means to every citizen. The man in the street is not conscious of the fact that the terrific "competition for land" may well throw the entire land use program out of balance and result in depriving the citizen of wood and water.

Obscured by the smoke screen of the "war" are many important eco-

nomics facts—such as the expanding demand for land to provide the natural resources. Raw materials, food supply, areas for urban development and a multiplicity of needs to support "exploding populations." Actually we are witnessing a struggle between two factions, one to acquire land for a single purpose as against a far sighted long range program of land management to provide for the growing requirements for increased supplies of natural resources.

The urgent need for arriving at a balance in land use is obvious. Inconsistency in policy of Federal land managers is apparent when one agency presses for an increase in forest growth and an acceleration of the cut whereas another agency drives for an absolute withdrawal of forest land from production to be devoted to a single purpose.

There is no disputing the fact that recreational and park areas are essential to the well being of modern society. Recreation as a business demands recognition. This demand is being squarely faced by the Forest Service through management for "multiple use" which included recre-

ation along with forests, water, range and wildlife.

Chief of the Forest Service, Richard McCardle, stated in a recent address (see April PULP & PAPER) "the possible diversion of forest lands for urban development, parks and other purposes with the potential conversion to grow food it appears that more than one-third of our timber growing capacity and one-fourth of our commercial forest land may seriously be sought for other purposes within the next few decades."

Is not the necessity for water and timber paramount to the current demand for more area for the single-purpose use of recreation?

Now is the time for decision. The "war" had best be resolved by responsible federal administrators and a balance of land use determined before the citizens of the Nation become the victims of today's feud and ambitions of Federal Agencies to "build empires." The duty of the Forest Service still remains the order of the day "to furnish a continuous supply of timber for the use and necessities of the citizens of the United States."

STUART MOIR
Forest Counsel,
Oswego, Oregon

Fast, Accurate Log Volume Measuring

Rayonier's volume-by-weight system is used on random length pulp wood logs, reduces scaling time and encourages better integration

● An accurate, efficient system for determining volume of loads of random length pulpwood logs was featured at the recent meeting of American Pulpwood Assn.'s. Western Technical Committee at Aberdeen, Wash. The system is used at the Grays Harbor and Port Angeles mills of Rayonier Inc.

Pulpwood arrives at these plants both as logs and chips. The log loads are uniform; containing either "large" or "small" logs. The volume determination system concerns only the small logs as the larger ones are scaled conventionally. Size-class segregation by loads is essential at the Grays Harbor plant because they are processed separately in the wood mill. Small logs can be no longer than 18 in. diam. at the large end, the capacity of the smaller chipper determining this limitation.

Since 1950, Rayonier has encouraged loggers to deliver small pulpwood as "long" logs. This encourages loggers to use conventional equipment in cleaning up harvest areas and maximize recovery of pulpwood.

The Rayonier report, a joint effort of W. L. Vincent, mgr. of land dept., and Earl Simonton, mgr. of log sales and purchases dept., concerned a "volume by weight" system. Since early 1956, when the program started, all cordwood received at the Port Angeles plant has been weighed; a total of 204,400 cords through March 1960. Nearly 14% was checkscaled. The difference in these volume determinations was less than .1%—28,446 cords by weight, 28,486 cords by checkscaling.

This remarkable accuracy is the result of (1) a sound weight-to-cubic volume content relationship worked out by Rayonier personnel and (2) continuous checking to keep conversion factors current for each log supplier to reflect the influence of several potential variables.

The correction factor is determined by scaling each log of several loads, using a volume table prepared by staff members and weighing each load. After determining this original weight-per-cord factor for the individual supplier, future deliveries are checked periodically and adjustments made when warranted.



Simonton DeLong Lewis Hensel

PARTICIPANTS of APA technical meeting. Group Chmn. Robert L. DeLong, asst. to director of forestry, St. Regis Paper Co., Tacoma, presided; J. S. Hensel, APA forest Engr., Wausau, Wis., Earl Simonton, Northwest Timber Div., Rayonier Inc., Hoquiam, L. L. Lewis, St. Regis Paper, Tacoma.



CORD CONTENT OF PULPWOOD LOGS accurately, efficiently determined via load-weight basis at Rayonier's Hoquiam, Wash. plant. System involves conversion factors reflecting weight-volume variables founded on continuous checkscaling.

Mr. Simonton states, "In maintaining correct average weight factors, good results have been obtained by scaling approximately 10% of the wood delivered. Where a large amount of wood is delivered, the last 10 loads of each vendor are averaged, unless a definite trend in weight is noted due to a change of setting. Where a definite change in weight is found, some adjustment is immediately made in the direction of the trend noted, until enough loads are scaled to establish a consistent average weight factor."

Adjustment Factors

Variables concerning the weight of cordwood of a given species include:

Type of wood (green, dead, mixed), weather condition (dry, wet, muddy), surface (smooth or rough), bark (full, none, half), condition (sound, medium rot, extensive rot).

Separate factors are determined, in the Rayonier system, for the three wood types but actual use seldom requires application of more than one for each operation.

As to the influence of weather conditions on weight, 100 lbs./cord was found to be a fair allowance for wet pulpwood logs; 200 lbs./cord for muddy logs. These two factors are only applied singly. If logs are both wet and muddy, the factor is still 200 lbs. Studies disclosed that bark

Pulpwood Section

of hemlock logs approximates 500 lbs./cord.

The weight system, according to Mr. Vincent, has received universal acceptance in the areas used and "has helped maintain a well balanced the mills. Scaling time has been reduced substantially. In most cases the scale ticket is handed to the truck driver as soon as his trailer is loaded. Both the state and U.S. Forest Service have accepted our weight measurement as basis for stumpage payments.

"Daily records are kept at the mill showing the cordwood tally number, the vendor, log brand used, cords for each load, hauler, and the net weight of each load. The tally number is

placed on the load with waterproof chalk, enabling the mill to keep an exact check on cordwood use."

Lowell L. Lewis, mgr. wood procurement, St. Regis Paper Co., Tacoma, and leader of APA's western chip development and handling subcommittee, reported on a survey of West Coast chip consumers. Lack of standardization among the mills was revealed. This is true of chip sampling methods, classification, volume determination, production equipment.

Of the mills reporting using composite chip samples for testing purposes, some take them by "grab sampling," others by mechanical sampling. At least one mill relies on

visual inspection until noting definite imperfections.

Some of the mills reported measuring chip quantities on "bone dry weight" basis. Others adhere to the 200 cu. ft. unit of measurement while others use a "combination."

Although the size of screening perforations have been standardized considerably, each mill appears to have its own individual criteria as to the percentage distribution within the specified size range.

Allowable dirt count in pulp chips is one factor in which the survey showed complete uniformity; dirt or foreign matter not accepted. Allowable bark content ranged from .1% to a full 1% (weight basis). Over half the mills reporting on allowable rot content require chips to be "substantially free of rot," the other mills permitting up to 1% by weight.

European Poplars Planted in B.C.

● Within a few years, Westminster Paper Co. expects to obtain about one-third of its pulpwood supplies and all of its hardwood requirements from a poplar plantation in the Fraser Valley whose parent stock came from the forests of the Netherlands and West Germany.

For a timber-rich province like British Columbia to turn to Europe for wood may seem like taking coals to Newcastle, and to old-timers the project recalls the attempts made back in the '80's to establish a paper industry at Port Alberni on Vancouver Island using burlap carried around the Horn from the United Kingdom. That ill-fated enterprise foundered because its promoters deplored the lack of raw materials; they had overlooked the surrounding forest that today sustains newsprint, kraft and board mills representing an investment of some \$150,000,000!

But Westminster Paper Co.'s poplar project is considered entirely practical as well as one of the most interesting experiments of its kind on the North American continent.

In the past, native cottonwood stands have been the source of hardwood for Westminster Paper Co. and peeler stock for Western Plywood Co., but cottonwood does not regenerate easily and where it has been removed it is usually replaced by worthless scrub. For that reason, the two companies organized West Tree Farms, Ltd., and started the plantation expected to give them a hardwood supply in perpetuity.

The company has already stocked 3,000 acres in poplar, a species similar to cottonwood in wood content. It hopes to have about 12,000 acres or more in poplar within a few years and such an area, it is estimated, will be sufficient to meet the hardwood requirements of the two plants for an indefinite period at present rate of demand.

The stock is flown out from Europe in the form of short cuttings about five to ten inches long. First, it enters the company's nursery and the shoots are replanted in the areas designated, mostly on the low-lying islands in the Fraser not far from Chilliwack and on mainland areas near Matsqui, formerly part of an Indian reservation, where native cottonwoods have been depleted. Within a year, the replanted stock is eight to 12 feet tall. The trees add about an inch in diameter annually, so that within three or four years the original replants, set out in 1956, will be about six or seven inches in diameter and the thinnings available for pulpwood. For plywood stock, a 25-year cycle is anticipated. Traditional softwood species require more than twice that length of time to reach commercial size, so the economics of the Fraser valley project can be readily appreciated.

John Bene, president of Western Plywood Co., who had extensive experience in plywood manufacture long before he went to British Columbia shortly before World War II, originated the program, and visited the areas in the Netherlands and

Germany from which the cuttings have been taken to create the new exotic forest on the west coast.

Special care in selection was made to obtain species that would thrive in the Fraser valley.

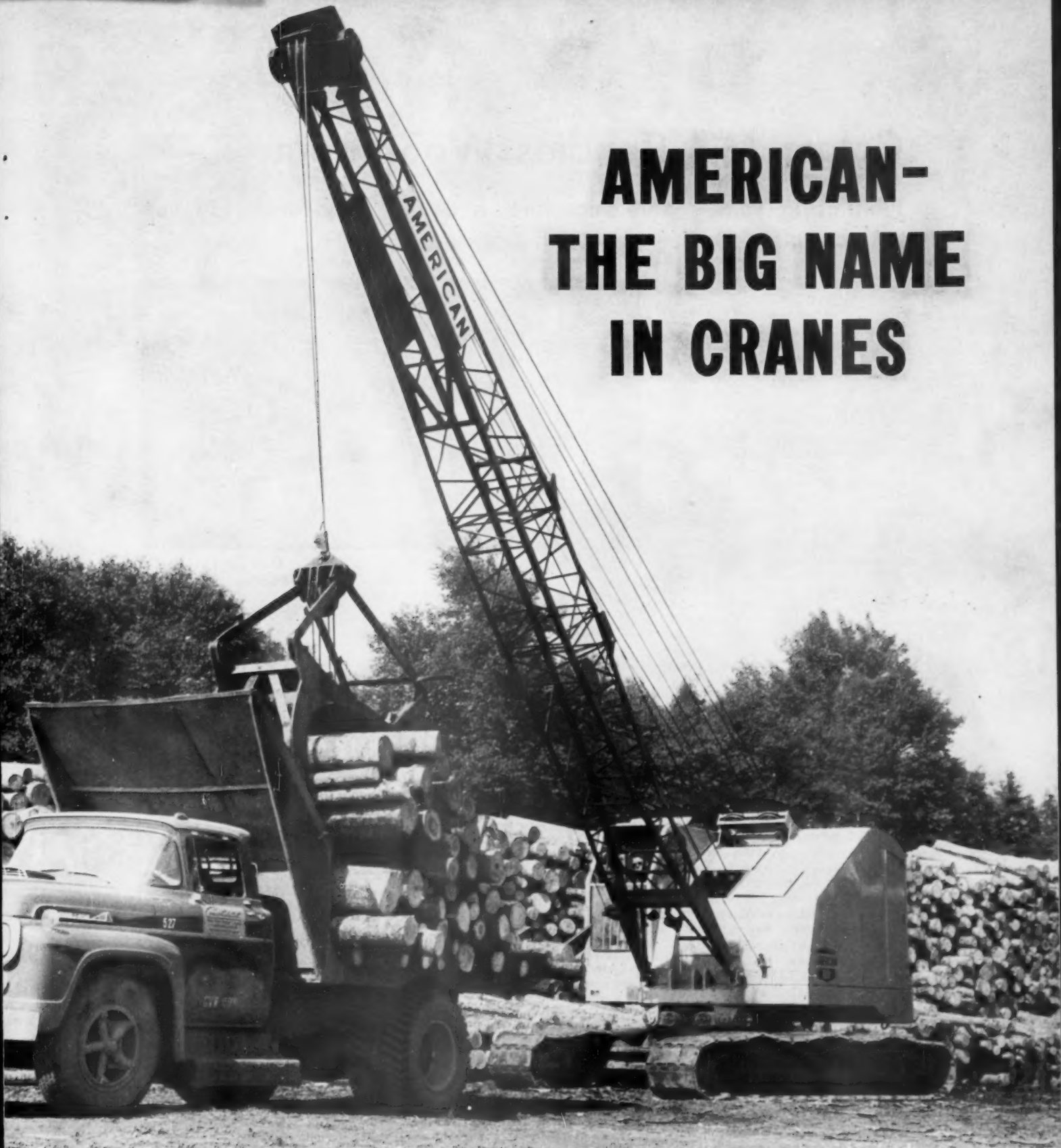
An experienced Dutch forecaster, Gerry Blum, is directly in charge of the plantation as superintendent. At present, labor requirements are seasonal, and when the planting period is over in the spring few men are needed. When the time for harvesting comes, it is expected that conventional methods of logging using light equipment will be employed.

At present, cottonwood supplies in the Fraser valley are being provided chiefly from farm woodlots.

The principal long-term problem is to acquire sufficient acreage for the enterprise. While supporting the idea in principle, the provincial government at present lacks authority to lease crown land for this purpose. Such a program was recommended by the late Gordon Sloan following his 1954-55 survey of the province's forest resources.

"Cottonwood and other suitable poplars must be planted to assure a future supply of this raw material," wrote Mr. Sloan, referring to the use of cottonwood by Western Plywood Co. and Westminster Paper Co.

He added: "... and I recommend that crown land suitable for poplar cultivation, such as alluvial lands in the larger rivers, be sold to tree-farmers, under revised regulations affecting tree farms ... upon such terms and conditions as may appear just and equitable."



AMERICAN- THE BIG NAME IN CRANES

This American 300 Series Crawler averages 60 cords an hour on the North Shore of Lake Superior

AMERICAN HOIST
and Derrick Company
St. Paul 7, Minnesota

EXCAVATORS-CRANES
to 2 yds.-60 tons
LOCOMOTIVE CRANES
to 130 tons

DERRICKS-HOISTS
to 800 tons
REVOLVER CRANES
to 400 tons

CROSBY-LAUGHLIN
DIVISION
Forged fittings
for wire rope-chain

Celgar Mill Readies Woodroom

Plant designed to handle chips, large and small wood for 500 tpd pulp mill, first located in B.C. away from tidewater

● To assist engineers during the design stage and provide a better picture for contractors during the quoting period, Celgar, Ltd., had key units of its \$50,000,000 kraft pulp mill at Castlegar, B.C., produced as models.

The woodroom model was also used at the site during construction and for reference during the training of operating personnel before startup.

The new 500 tons daily capacity mill is the first in British Columbia to be located away from tidewater. It is scheduled to go on stream late this year and will produce bleached pulp early in 1961.

So that pulp chips can be stockpiled during the fall for winter start-up, the woodroom will be one of the first facilities to go into operation. Some rather unusual factors were made in the woodroom by Celgar and H. A. Simons, Ltd., consulting engineers.

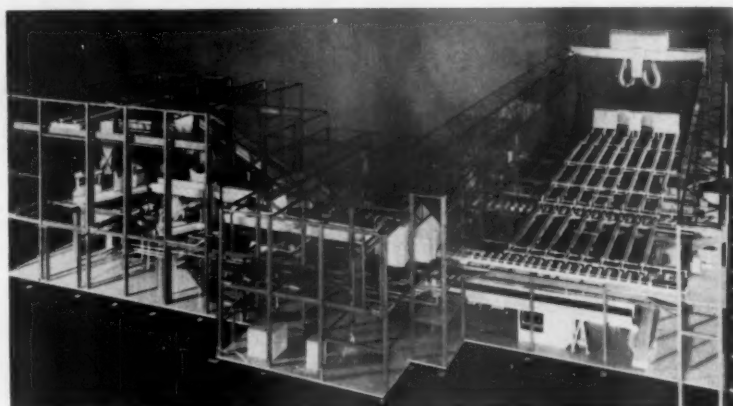
Because of the mill's location, Celgar has a wood supply with a smaller average diameter than the coastal operations but still containing appreciable volumes of large wood. Most wood will arrive in log bundles floated down the Columbia river, which has close to 40 feet annual variation in level at the plant site. The balance of wood will be delivered by rail and truck.

Celgar operates several sawmills in the surrounding area. Although sawmill chips will be used, the woodroom will handle the mill's total requirements, including allowance for hard barking and impeded water delivery during severe winter weather.

A combination of ring-type hydraulic barker and horizontal feed chipper, both manufactured by Hansel Engineering Co., was chosen to give clean barking, minimize manpower requirements and permit handling of long logs.

The volume of wood requires two barkers, and the range of wood diameters caused selection of 30 and 42 in. diameter machines. Since the small machine is more efficient on the smaller logs which predominate, the feed deck is arranged to crowd the small barker with larger logs, crooked logs and excess small logs diverted to the 42 in. machine.

The problem of handling truck, rail



WOODROOM MODEL HELPED construction and personnel training for new Celgar 500 tpd kraft pulp mill. Log bundles can be moved from trucks, rail or river by gantry type Colby crane which spans unloading areas and is cantilevered over river.

and water delivery of wood, and the river level variation, was solved by bundling all water-borne wood, and installing a 60-ton capacity, 66 ft. span Colby bridge crane, operating on a 360 ft. runway built by Western Bridge & Steel Fabricators. The crane extends over the road and track on the land end, with the other end cantilevered over the river.

Logs from land or water are placed on the chain decks. The outside deck operator spreads the bundle, and by controlling deck movement and lift skids, straightens and separates the logs. The inside deck operator sorts logs on to the large barker rollcases, or passes them on to the small barker rollcase. Since there are no breakdown saw facilities oversize logs are picked up by the crane operator with an auxiliary hoist and set off the decks for the Celgar sawmills.

The rollcases which divert logs from the main deck to the 42 in. Hansel barker are high speed, 250 fpm to minimize interruption in log flow to the small barker. This is too fast for the 42 in. barker feed, and so a transfer deck will smooth flow to barker.

Drainer bottom conveyors from the barkers and the decks are combined and fed to a hog and bark press. Sawmill bark and wet waste is pumped to the woodroom, drained and pressed with woodroom refuse. All water is collected, screened through 5 vibra-

tory screens to remove coarse material and then passed to a 100 ft. diameter clarifier for final purification before re-entering the river.

High-pressure water for the barkers, and steam for operating log handling equipment, both in the pulp mill and sawmill woodroom, are generated in the pulp mill power group. Chips from the woodroom are conveyed to silos or to outside storage. To insure against dirt pick-up in these storages, chip screens are in separate building.

The woodroom will operate with a crew of nine and a foreman, including the boom boat crew who position logs beneath the crane.

Claims World Pulpwood Production Record

A Canadian woodcutter in Quebec, Isadore Lepage, claims a world record for pulpwood cutting after producing more than three times as many cords as his fellow workers near La Tuque.

Mr. Lepage felled, trimmed and sawed an average of 7.96 cords a day for the 74-day 1959 cutting season, using a mechanical saw. His best output was 14.62 cords in 9½ hours, while his fellow workers were averaging 2.11 cords a day. He was paid on the basis of \$5.25 a cord.

Mr. Lepage, 27, works for the Canadian International Paper Co.'s St. Maurice division.



Rader System for Chip Handling and Storage Used at Crown Zellerbach's West Linn, Oregon, Division

This versatile system for handling purchased chips with Rader equipment, illustrated above, has given the Crown Zellerbach Corporation a fast high-capacity method for receiving, storing, and reclaiming chips. Heart of the system is the Rader blower and feeder, shown at upper left. Chips are metered to the Rader feeder from the conveyor at upper right of photo; they are then blown through the valve at lower right to pipes leading to outside storage or screen room. Kewanee hydraulic truck dumper (upper right photo), furnished by Rader, can empty 13-unit chip trailers into bin in a few minutes. At lower left is the Rader steel bin which can accommodate two

full trailer loads at a time, but normally empties as fast as trailers can be brought in and dumped.

Deflector in photo at lower right directs chip flow onto pile. Operation of system is controlled from panel in house overlooking the dump, bin, and storage pile.

Write for literature showing how Rader Pneumatic Systems can save you money in handling chips and dry bulk materials.

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SHIPPING

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• VAST NATURAL
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RAW MATERIAL

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MENTS SCRUP-
ULOUSLY MET

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TYPICAL ANALYSIS

| | Typical % | Guaranteed % |
|---------------------------------|--|----------------------|
| Na ₂ SO ₄ | 99.57 - 99.87 | 99.5 Min. .2 Max. |
| NaCl | .06 - .14 | .1 Max. |
| B ₂ O ₃ | .03 - .06 | .05 Max. |
| CO ₂ | .02 - .04 | .1 Max. |
| Na ₂ O | .05 - .09 | .2 Max. |
| H ₂ O | .01 - .10 | .05 Max. |
| Insoluble | .001 - .01 | |
| Density: | Struck Approx. 75 lbs./cu. ft. Tapped Approx. 88 lbs./cu. ft. | |
| Solution | Clear | Color . . . White |

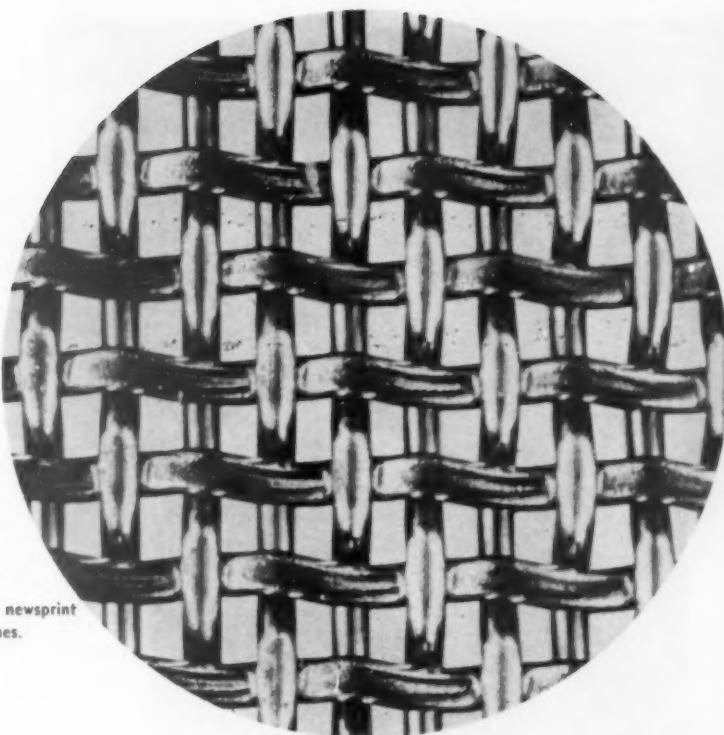
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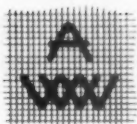
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Photomicrograph of newsprint
wire enlarged 25 times.

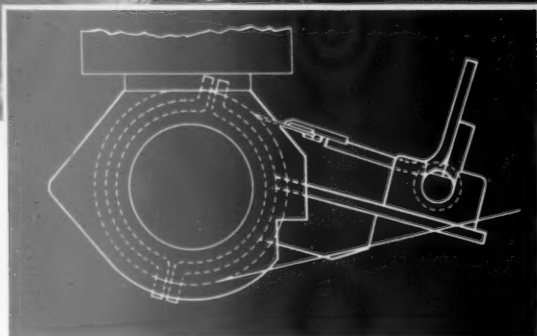
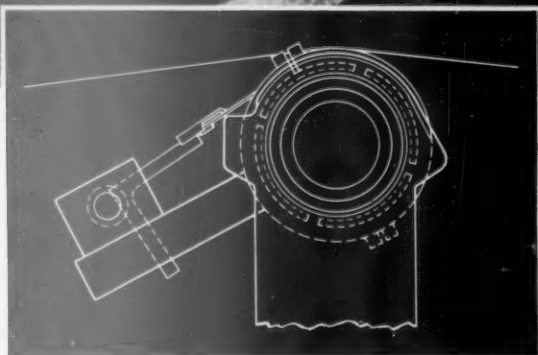


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Every day hundreds of mills are profiting from Lodding's exclusive specialization in doctoring. Whether it be for a breast roll, return wire, stretch, wash or wire guide roll, each Lodding Doctor is engineered and custom-made for installation on a specific machine roll.

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From the wet end to the reel Lodding is well qualified with over 30 years of specialized experience to handle every doctoring need, no matter how complex.

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Engineering Corporation
AUBURN, MASSACHUSETTS

Midwest

J. D. Dailey is named senior vice pres. of Allied Paper Corp., says an announcement by Dr. Ward D. Harrison, president. Former mgr. of Riegel Paper Corp.'s Wilmington, N. C. mill, Mr. Dailey has been in the pulp and paper industry more than 30 years. He began his career with Gaylord Container Corp., now a division of Crown Zellerbach Corp. While with Kimberly-Clark Corp. he helped in start-up operation of the new Coosa River Newsprint Co. mill in Alabama. . . . Rex Paper Co., Kalamazoo, Mich., appoints Walter H. Dieterichs asst. gen. supt. He was formerly chief chemist at the Rumford, Maine mill of Oxford Paper Co. and prior to February 1953 served as research associate at Munising Paper Co., Munising, Mich.

Dean King Phillips, gen. mgr. of the Diamond Match div. of Diamond National Corp., died recently in New York,

N. Y. Prior to his recent promotion to gen. mgr., he had been director of public relations and previously served in the same post for Gardner Board & Carton Co. before its merger with Diamond National. He was a native of Middletown, Ohio.

KVP Sutherland Paper Co. names Charles R. Snyder controller of the Sutherland div. and Edward Nycz controller for the KVP div. Mr. Snyder was formerly supervisor of industrial accounting, Sutherland div., and Mr. Nycz mgr. of gen. accounting, KVP div.

Oswald K. Krogfoss, sales mgr. for Crandon Paper Mills Inc., Fort Madison, Iowa, has been enrolled in the National Defense Executive Reserve of the Business and Defense Services Administration, U. S. Dept. of Commerce. . . .

Ralph W. Dickey, Crown Zellerbach Corp. sales representative formerly in Los Angeles, is named to a similar post in Chicago.



A. Harold Martin, Paper Mill Supt., Thilmany P & P

He was previously a division mgr., including paper machines 6, 7, 8 and 10, for the Kaukauna, Wis. firm and succeeds F. X. Kreiling, who resigned recently to accept a position with Georgia Pacific Corp. Prior to 1957, Mr. Martin was technical control director for Marinette Paper Co. and had held a variety of positions with Scott Paper Co.

R. C. Dressler, in charge of paper mill stock preparation, succeeds Mr. Martin. Frank Ferrige continues as mgr. of the division that includes paper machines 9, 11 and 12.

Miami Univ., Oxford, Ohio, has named its paper technology center the Robertson Laboratory in honor of the late Reuben B. Robertson Jr. Mr. Robertson, president of Champion Paper & Fibre Co., was a member of the Miami board of trustees from 1957 until his recent death.

Coated Paper Course Popular at Western Mich.



Some 25 papermakers and suppliers representing all parts of the U.S. and Canada were enrolled June 19 in a three-week course on "The Principles and Practice of Coated Paper Manufacture". Regular faculty members of the Kalamazoo, Mich. school's Dept. of Paper Technology conducted the program—including lectures, laboratory work and field trips.

Participants included (first row, l to r): Ronald A. Johnsen, Central Soya Co., Inc.; Per R. Berg-Johannessen, Dryden Paper Co. Ltd.; Merrill E. Boone, New York & Pennsylvania Co. Inc.; C. E. Winchell Jr., Moore & Munger; Spencer B. Smith, Minerals & Chemicals Corp.; James R. Piehler, Clinton Corn Processing Co.; Hal W. Short, Alliance Paper Mills Ltd., and Maurice F. McGrath, J. M. Huber Corp.

(Second Row): J. W. Maxwell and John Kila, Gulf States Paper Corp.; William A. Matson, Dryden Paper; Gary L. Bezalla,

Marathon div., American Can Co.; H. M. Vosmer, National Cash Register Co., and Dr. John Fanselow, associate professor, Western Michigan.

(Third Row): Stanley C. Zink, Black-Clawson Co. and George E. Graham, Glidden Co.

(Fourth Row): Harold R. Hurwitz, A. B. Dick Co.; Ronald C. Morgan, Michigan Carton Co.; Dr. A. H. Nadelman, head of the Dept. of Paper Technology; Roderick A. Perkins, Columbia River Paper Mills, and Edward T. Kane, Hubinger Co.

(Fifth Row): William J. Shaughnessy, Albany Felt Co., Albany, N. Y.; Leonard P. Sutton, Scott Paper Co.; Richard H. Bublitz, Hubinger, and Raymond L. Jones, asst. professor at Western Mich.

(Sixth Row): Norris O. Faggard, International Paper Co.; Dr. R. A. Diehm, faculty; Dr. Andreas von Koeppen, faculty, and E. W. Leaman, Scott-Paper Co. Not in: P. D. Arseneau, Miles Chem.



New Asst. to Gen. Mgr. at Ahdawagam Div.

. . . of Consolidated Water Power & Paper Co. is John Z. Segal, who comes to the Wisconsin Rapids, Wis. company with 13 years' experience in the paperboard products industry. He was formerly sales mgr. for Artistic Carton Co., Elgin, Ill., and at one time served as Chicago district sales mgr. for United Board & Carton Co. He received early training in manufacturing with Alton Box Board Co., Alton, Ill.

Strictly Personal

William E. Caldwell is named senior vice pres. of Cornell Paperboard Products Co. div., St. Regis Paper Co., and gen. mgr. of Cornell operations in Milwaukee. Presently res. mgr. in Pensacola, Fla., he succeeds Arthur Miller, who retired July 1. Mr. Caldwell was at one time res. mgr. of the Panelyte plant and paper mill, Kalamazoo, Mich. . . . Martin Kirchhoefer becomes director of purchases for

Consolidated Water Power & Paper Co. Leonard H. Sence is named chief engineer and Bruce R. Lipe asst. chief engineer of the Centrifugal Pump dept., Allis-Chalmers Mfg. Co.'s Norwood, Ohio works. . . . Ralph W. Rammer is mgr. of the central district, W. S. Tyler Co. He replaces James W. Sullivan, transferred to Cleveland headquarters.—Don W. Zeigler.



P. J. Noel Promoted by Wausau Paper Mills Co.

He was formerly supt. of finishing and customer service and now joins the staff of sales service and converting sales for the Brokaw, Wis. firm.

In another move, Richard Jacobus is advanced from technical asst. to the paper mill supt. to asst. paper mill supt. Charles Rainville, finishing room supervisor, becomes finishing room supt., and LeRoy Strek joins the finishing room supervisory staff.

Mr. Jacobus, prior to joining Wausau in 1957, worked at the Institute of Paper Chemistry, Appleton, and with Eastern Corp.

Southern

J. N. Van Hoose, mill mgr. of International Paper's Natchez mill has announced several promotions: C. W. Sawyer moves up to U.M.E. Supt. from chief electrician and P. D. Bunker has been promoted to asst. U.M.E. Super, James Havron is now plant engineer and P. A. Inzina moves into his former position as first asst. plant eng.; A. D. Koch has been promoted to chief electrician from first asst. and Charles S. Fort takes over as first asst.; L. D. Rankin moves up from head operating electrician to second asst. chief electrician. Mr. Sawyer succeeds G. G. Boyd who has transferred to the Louisiana mill. Mr. Boyd replaces Carl F. Reed as U.M.E. Supt. Mr. Reed, supt. of the Louisiana mill since 1956, is temporarily working with a maintenance coordinating group.

Frank (Curly) Singletary, widely-known throughout the South as both a wire and felt company representative, has joined the staff of Appleton Woolen Mills covering Mississippi, Arkansas, Texas, Louisiana, parts of Alabama and Tenn. . . . Tom L. Gilles, a graduate of the New York State College of Forestry and onetime staffmember of Brunswick Pulp & Paper Co., Brunswick, Ga., has joined the technical staff of Riegel Paper Corp., Acme, N.C. He'll be supervisor of technical services. He succeeds Paul Kinsey who has been named technical director at Riegel. George Root has been promoted to tech. asst. to the paper mill supt. at Riegel.

Announcing **A NEW**
INDUSTRIAL LABORATORY
FOR THE INVESTIGATION OF THE GASEOUS
(AIR) DRYING OF MATERIALS

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THE PAPER INDUSTRY
Determine The
Best Coating
and
Method

Serving
CHEMICALS AND PLASTICS
Determine The
Bulk-Drying
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Conditions

Three Pilot Lines

LINE 1 A Universal 3-Zone Conveyorized Oven — Interchangeable air projection plates above and below — Temperature 70-600° — Low and high velocity 400-10,000 ft. per min. — 24" wide conveyor with wide range drive — All zones individually retractable from conveyor line — Steam injection for humidity control all zones — Zoned horizontally as well as vertically.

Purpose: Drying and curing of wet material — Coated webs, coated objects, plastics, impregnated webs, etc. — Arranged for quick determinations on all products by the "Miniaturized" sample car method.

Preceded by: Coater, impregnating tanks and squeeze rolls.

LINE 2 Two Zone Dryer, Heater or Cooler for Particulate Matter (pelletized material — chopped material — crystals). Works by aerating a bed of material on belt conveyor — Velocity range 1000-10,000 ft. per min. — Temperature 45°-600° — Arranged for separation of fines — 12" wide belt conveyor.

Purpose: Drying, heating, cooling of particles of material.

Preceded by: Feeder or pelletizer.

LINE 3 Super Speed High Velocity 4-Zone Arch Dryer for Coated Web Material — Carries 24" web on rolls or belt — Velocity 400-12,000 ft. per min. — Temperature 70-600°F — Proved drying capacity (clay latex) 2800 ft. per min.

Purpose: Proving coatings and coating methods.

Preceded by: Coaters by different manufacturers.

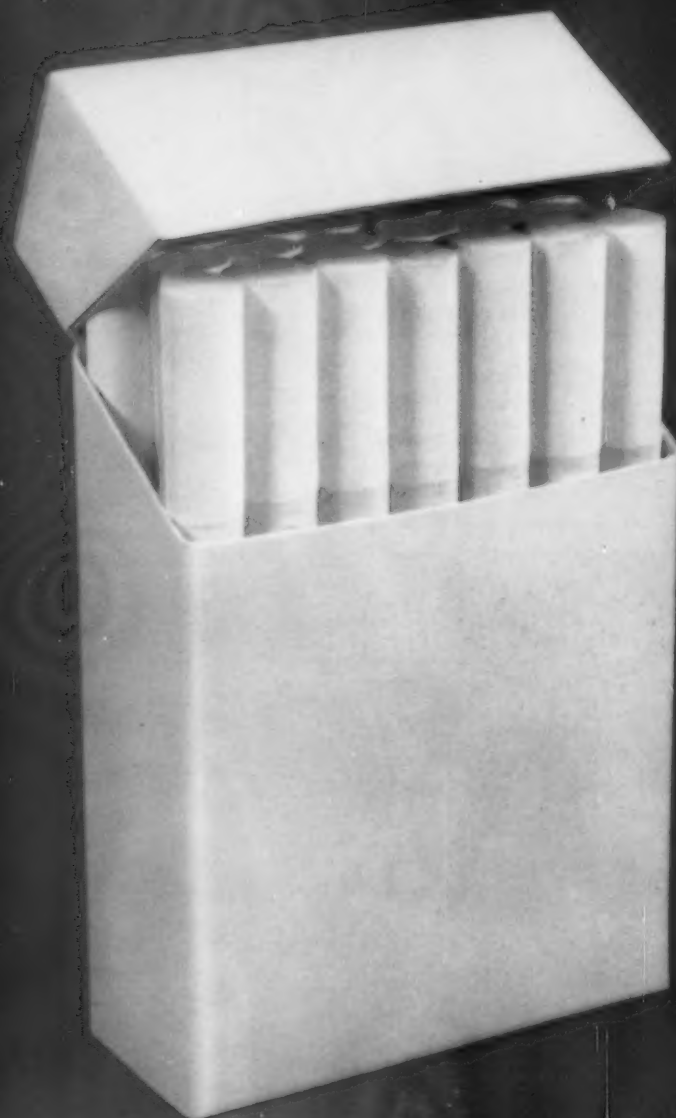
Plus — Precision Batch Dryer — Basis Weight Scales, Thermocouples, Thermometer, Mixing Equipment, Etc.

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Strictly Personal

Jim Montgomery, editor of Gulf States' monthly magazine, *News Bag*, has come up with another off-beat feature—this one pertaining to girls at the mill who have earned their P.H.T.—“Putting Hubby Through.” Gulf States is in Tuscaloosa, Ala., home ground of the university of Alabama and the story pays tribute to girls who worked their husband's way through college at the paper mill.

James Kittrell has moved up to machine room supt. at Rayonier's Fernandina, Fla., mill. He has been with the mill since 1939. . . . A. E. Staley Mfg. Co. has announced appointment of Donald A. Dempsey as technical sales representative in the Southeast. A graduate of Amherst College, he succeeds William Gallagher who has been named Southern regional mgr.



Edward B. Greef Heads Traylor Southwestern Sales

He is newly-appointed district mgr. of the San Francisco office of the Traylor Engineering & Mfg. div. of Fuller Co. and is in charge of industrial sales in California, Nevada, New Mexico and Arizona.



Alfred E. Miller Heads New Panellit office in Baton Rouge

He is a registered professional engineer and an ISA member as well as a graduate of Southwestern Louisiana Institute. The new offices will handle sales and service on Panellit's computers, data loggers and other engineering services provided by the parent company. New address: 635 Laurel St., phone DI 2-7269.



Harry Westberry Will Head Owens-Illinois Department

The former member of the Florida House of Representatives and native of Georgia will be manager of Industry Relations for the Southern mills and woodlands of Owens-Illinois. He has been personnel director of the O-I mill in Jacksonville, Fla.

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the paper and allied industries.



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PULP & PAPER

Strictly Personal

H. Wells Meakin, a staff member of the J. E. Sirrine Co., Greenville, S. C., since 1928, has been elected a vice pres. of the company. He played a major role in the design of Bowaters Southern Paper Corp., Marathon Southern at Naheola, Ala., Crossett Paper Mills and Riegel Carolina at Acme, N. C. . . . Percy S. Lewis has been promoted to asst. pulp mill supt. at East Texas Pulp and Paper Co. He joined East Texas from Riegel Carolina as a first helper in the bleach plant in 1954, rose to bleach plant opera-

tor a year later and is a Clemson College alumnus.

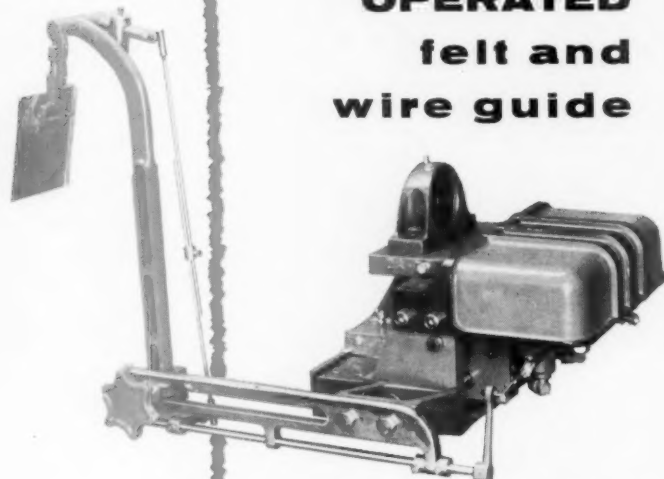
John Goss, who has been with the Gaylord Container Div. of Crown Zellerbach since he received his masters degree in chemical engineering from Louisiana State in 1937, has been promoted from gen. supt. to asst. resident mgr. of the Bogalusa, La., mill. Junius Sapp, asst. gen. supt., has been promoted to prod. supt. and Dalton Pollett has moved up from asst. paper machine supt. to asst. prod. supt.—William F. Diehl, Jr.



Guenter Herwig, Tech. Dir., Finch, Pruyn & Co.

A native of Nuremberg, Germany, he was formerly development engineer. Mr. Herwig served as project engineer for various European pulp and paper mills following graduation from the O. V. Miller Polytechnic Institute in Munich. He joined the Glens Falls, N.Y. firm in 1955 as technician in the development laboratory.

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New . . . Simple . . . Compact. Now operating on machines at speeds over 2,000 fpm, the Gilbert and Nash Air Guide reacts quickly with reliability and precision.

Although entirely air operated, this new guide uses air only when a correction is made. What's more, "swing roll" effect or guide roll oscillation is completely eliminated.

Guide roll is held stationary if air supply is interrupted . . . there are no springs to pull guide roll with possible damage or loss of wire or felt.

Complete standardization of all guides can be easily accomplished because the same model air guide is used for wires, wet and dryer felts.

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Northeast

Edward K. Keith is now superintendent of the kraft pulp mill at Lincoln, Maine of Eastern Fine Paper and Pulp Div., Standard Packaging Corp. Mr. Keith recently retired as vice president and manager of mills and a director of Penobscot Chemical Fibre Co. He had been with PCF for 40 years and had done considerable development work in the field of digester corrosion.

Richard W. Flores is acting superintendent at Riegel Paper Corp.'s Riegelsville, N.J. mill replacing George Suydam who has resigned. Mr. Flores is succeeded as Upper Mills quality control supervisor by William Heine. . . . John E. Griffith former technical asst. to the supt. of Riegel's coating dept. at Milford, is now technical industrial salesman in its specialty products division.

James D. Stinchcombe steps ahead as asst. manager of staff engineering, Scott Paper Co. and Roy P. Tidman becomes projects manager. . . . Richard E. Hanson manager, technical specialties sales, Oxford Paper Co., has resigned. . . . Morton Hacker has joined Huyck Felt Co.'s research and development dept. as research engineer specializing in development of needled felts for papermaking.

Harry F. Schenk has retired early from the Mangus Metal Corp. to establish Harry F. Schenk Enterprises selling various types of equipment for screening and processing of pulp and paper making. . . . Gilford F. Henderson, general sales manager, Brown Co.'s paper and paper products division, retires August 1 after 43 years with Brown. He had been president of the Kraft Paper Assn. in 1949-1950, and chairman of the bleached converting division, Sulphite Mfrs. Assn. He also represented the Kraft Paper Assn. on the board of governors of APPA.

Solvay "Miniature Mill" helps customers improve pulps



Handsheet in process of manufacture from customer's pulp sample will be used for testing.

Solvay Chemicals For The Paper Industry

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| Caustic Soda | Hydrogen Peroxide |
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PULP & PAPER — August 1960

When you submit a pulp sample to Solvay for analysis, it is literally "put through the mill." Its fitness for the product you want to produce is determined in a laboratory mill that duplicates actual production conditions.

Solvay graduate engineers, versed in pulping, bleaching and papermaking, conduct these tests. They employ novel experimental techniques utilizing a wide variety of basic and advanced equipment to produce practical results for the industry. They can recommend the *best bleaching sequence* for a mill without prejudice. Solvay is actively interested in chlorine, chlorine dioxide, hydrogen peroxide and hypochlorite.

Write for information or technical aid in applying any of these bleaching agents or other Solvay® products listed.



Wood chips (right) are resolved in the digester, then produced into fully bleached pulp (left) for hand-sheet test.



Inspection of handsheet reveals suitability for physical testing and cleanliness of pulp (presence of foreign dirt or unbleached fiber bundles).

**"Reliance V*S Drive
provides 60-second
acceleration and
precise tension control
of Cameron winder**



H. E. Stebner, Paper Application
Engineer, Reliance Electric &
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"At speeds of 6,000 FPM, one of the keys to precise tension control of newsprint is electrical regenerative braking on the unwind stand. A Reliance D-c. motor powering the unwind roll acts as a drag generator, maintaining critical tension.

"For normal stopping, positive controlled deceleration is provided by regenerative braking in less than 60 seconds. Emergency stopping is a combination of dynamic and mechanical braking to provide fastest possible stopping. A VSR Regulator system controls the unwind tension, continuously compensating for WR^2 and taper tension. Another VSR Regulator holds over-all winder speed constant.

Now in use at Southland Paper Mills, Inc., Lufkin, Texas, the Cameron Winder has a capacity for a 248" mill roll, 74" in diameter, and weighing 3300 pounds. Reliance Drive equipment requires only minor maintenance, with practically no downtime caused by drive failure . . . and a uniform, high quality paper product is the result.

Reliance Sales Engineers are ready to apply their application skills to your drive problems. Call your nearest Reliance office or write for further information.

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Super 'T' D-c. Motors, Generators, Controls and Engineered Drive Systems.



Thomas Gerace moves to Bucksport, Maine as resident manager for St. Regis Paper Co., replacing Fred C. Goodwill who has resigned. Mr. Gerace joined St. Regis in 1930 as bleach plant superintendent at St. Regis' Deferiet, N.Y. mill, was pulp mill supt. there until he moved to Sartell, Minn. as resident manager in 1958.

Donald W. Dresden is now director of public relations, Scott Paper Co. . . . Albert F. Duval, president and director of U.S. Envelope Co., has resigned to join Hammermill Paper Co. as vice president. . . . William P. Peters is general manager of research and development for folding carton and boxboard divisions, Container Corp. of America at Valley Forge, Pa.

James M. Forrester has joined the pulp and paper group of Chas. T. Main, Inc. He was a project engineer at Rust Engineering and before that was with H. K. Ferguson.

Edward A. Wodka is now research group leader, Scott Paper Co.'s chemical research division. James F. Farber and Jerome M. Gess are research project leaders. William P. Logan, asst. research engineer and John R. Ryan is pilot plant operator.

Charles H. Scott is now chief mechanical development engineer, Dorr-Oliver Inc. . . . Marshall McKew is a senior

research engineer in the r and d dept., Huyck Felt Co.

Amor Hollingsworth, president, Tiletson & Hollingsworth Co., announces elections of following officers: Eugene H. Clapp, chairman; Paul C. Brown, executive vice president; John A. Ardini, vice president i/c manufacturing; Raymond G. Mather, asst. vice president and sales mgr., and Warren L. Price, asst. vice president.

Benjamin C. Hoy is now technical pulp sales rep in the kraft division of St. Regis Paper Co. He had been chief chemist of North Western Pulp & Power Ltd. since its start up in 1957, before that was on technical staff at St. Regis' kraft center at Tacoma, Wash. His base is New York.

Michael DePiano is sales manager, valve fitting division, Cooper Alloy Corp.

. . . Charles J. Fisher is vice president, manufacturing, Wyomissing Paper Products Co. . . . Ian D. Ritson steps into new post of director of construction for Olin Mathieson Chemical Corp. . . . Edward F. Burke has been promoted to asst. vice president of marketing, Standard Packaging Corp. He joined Stanpack as manager of the flexible packaging division in 1956, previously was with Shellmar-Betner as general sales manager and sales manager of the Milprint Co.

Leo John Parent, retired vice president and general manager of St. Croix Paper



Elliot S. Kohn Is Now Consulting Engineer

Mr. Kohn, formerly chief engineer of Rowland Tompkins & Son, Inc., will specialize in piping and mechanical design in the pulp and paper industry. He has more than 13 years experience with Rowland as specialist in pipe fabrication and design for pulp and paper mills.

Mr. Kohn has a b.s. in mechanical engineering, Cooper Union School of Engineering and is a member of the executive committee of the Metropolitan District of Empire State TAPPI. His new offices are in the Graybar Building, 420 Lexington Ave., New York 17, N.Y. Phone is Murray Hill 5-6336.

Co., died May 11 in Glens Falls, N.Y.—Maurice R. Castagne

3 PROVED PROFIT ITEMS



HANDIEST PORTABLE CORE CUTTER

Accommodates 1" I.D.'s on most standard models — larger models take cores up to 80" with I.D.'s up to 8" — adjustable stops. Furnished with legs or bench mounted. No lubrication required. PRICED FROM \$425.00



MOST VERSATILE DUPLEX SLITTER-REWINDER

BDR (or BDS) bench type razor or score type slitter — ideal for economical "short run" winding and slitting jobs — webs up to 24" — slits down to 1/4" on some materials. Hard-to-handle sheets wound with uniform density through patented windup principle. PRICED FROM \$3,475.00



LOWEST COST 2-DRUM WINDER

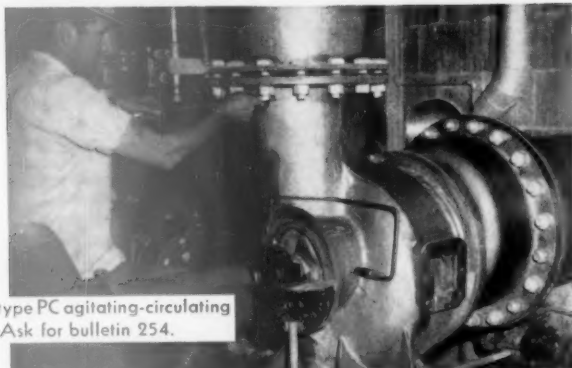
SR-60 offers score or shear type cutters — pneumatically controlled rider roll — constant tension through powered feed rolls. Web sizes to 72" — parent rolls to 40" — plus many optional features. Designed for simple operation. PRICED FROM \$10,900.00



Slitters, Rewinders, Sheetters and Core Cutters That Do More and Cost Less

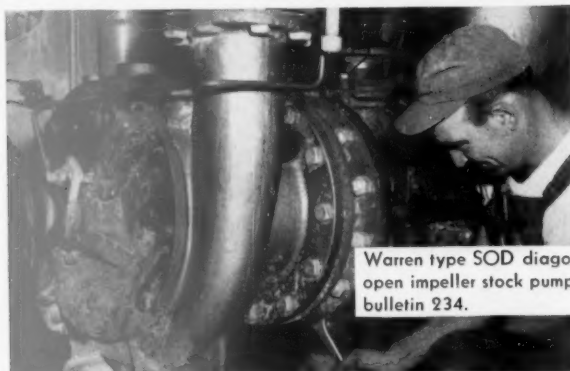
DOVEN DIVISION APPLETON MACHINE COMPANY • APPLETON, WISCONSIN

All through the New RED BLUFF PLANT OF DIAMOND NATIONAL CORPORATION **WARREN PUMPS**



Warren type PC agitator-circulating pump. Ask for bulletin 254.

HANDLE NEARLY ALL THE VITAL PUMPING SERVICES



Warren type SOD diagonally split, open impeller stock pump. Ask for bulletin 234.

THAT STRICT PRODUCTION SCHEDULES DEPEND ON

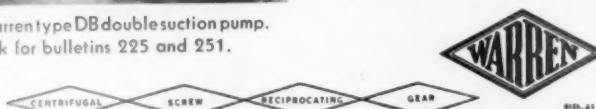


Warren type DB double suction pump. Ask for bulletins 225 and 251.

More than 120 WARREN PUMPS

are operating at the new Diamond National plant at Red Bluff, California.

With the help of Warren engineers, the progressive planners of this modern integrated forest products plant selected nearly the entire range of Warren stock and water pumps. That's a sound indication of implicit trust in Warren's ability to design and produce the most efficient pumps for all types of plant services.



WARREN PUMPS, INC. WARREN, MASSACHUSETTS

Oxford Promotes 15

George E. "Jim" Prentiss, formerly supervisor machine coated division, is promoted to general supt., paper manufacturing; Vincent A. Carpano, asst. to the general supt., to manager-quality control; Earle D. Thomas, asst. supervisor, machine coated div., to supervisor, machine coated div.; Cyril E. Johnson to asst. supervisor, machine coated division; Thomas F. McCaffrey, to supervisor north division uncoated mill with responsibility for operation of machines 3, 4, 5, and 6; John C. Bloom to assistant supervisor in the same division; David W. Gilmour to supervisor, south division uncoated mill with responsibility for machines A, B, C and 1 and 2; Clement G. Steidl, to asst. supervisor in the same division.

More about Oxford: Robert C. Brown, formerly supt. North Star Coater, was promoted to supervisor, North Star Coater; Robert A. DeMund, to supervisor, all color plant activities; Harry C. Kinne Jr., to supt. stock preparation; Bernard A. Kidder, to supt., paper mill services, responsible for all stock handling and work of basement crews.

Maintenance and Power Promotions at Oxford: Charles F. Fischer to general supt. for steam power, mechanical maintenance and filter plants; George R. Setterlund, is supervisor for steam power and Richard W. Sarle, is maintenance engineer.

John C. Delisle, trainee, Oxford Paper Co., has been assigned to the project group, technical service dept., as a chemical engineer; Andrew G. Elsbree, trainee, is asst. to the supervisor, tech. serv. dept.

Pacific

George W. Aljian retires as vice pres. of C & H Sugar Refining Corp., San Francisco, after 41 years of service. From 1945-58 he was director of purchasing and packaging, in 1951 became coordinator of the Hawaiian Sugar Planters Assn's. by-products project—an assignment he is continuing at 215 Market St., San Francisco.

Richard Loyst transfers from St. Francisville (La.) Paper Co. to Crown Zellerbach Corp.'s Camas (Wash.) div. as asst. supervisor of purchasing. . . . John Meisner is promoted to asst. beater room supt. at Camas to succeed Frank Holmes, who retired June 1. . . . W. A. Ginotti, asst. paper mill supt. at CZ's Port Townsend div., transfers to Camas as gen. supt., woodmill, finishing and services.

Dave James, director of public relations for Simpson Timber Co., Seattle, has been named 1960 chairman of National Council of American Forest Products Industries; Walter J. Delong, director of public information for Weyerhaeuser Co., Tacoma, is chairman of AFPI's program & planning committee.



**J. A. Hutchison Leads
Building of Arizona Mill**

He was formerly senior pulp-paper representative for Howard S. Wright Co. and joins Southwest Forest Industries Inc. as resident and project engineer for the new 140,000-ton per year kraft-newsprint plant near Snowflake, Ariz. He was resident construction engineer at the new Sitka, Alaska plant of Alaska Lumber & Pulp Co. Inc. and also served as resident engineer for the expansion of Ketchikan Pulp Co., Ketchikan, Alaska.



Ralph D. Dickey Retires

... as resident mgr. of the Seattle, Wash. office of Crown Zellerbach Corp. after 43 years' service. He will continue in a consulting capacity for CZ. Succeeding him at Seattle is Ronald Richardson.



**Carl Hopp To Head
Northwest Div., American Pipe**

He is promoted from sales mgr. to mgr. of the Portland, Ore. operation, serving five northwestern states and British Columbia. He has been in the field since 1922, when he joined Steel Tank & Pipe Co., purchased by American Pipe in 1945. The Northwest div. has expanded to become a major West Coast steel fabricator and concrete pipe producer.

For lots of threading, cutting and reaming

...Here's the Fastest, Easiest,
Cost-Savingest Way
To Do It!



RIGID.

535 Pipe & Bolt Threading Machine
Just 1 Universal Die Head and 2 Sets of Dies
Threads $\frac{1}{2}$ " to 2"

Cuts Die Changing 66%—Two sets of dies do the work of six... adjust to size right in machine. One set for $\frac{1}{2}$ " and $\frac{3}{4}$ "; the other for 1", 1 $\frac{1}{4}$ ", 1 $\frac{1}{2}$ " and 2". All other RIGID quick-opening pipe and bolt die heads and dies can be used.

No Slow Back-Off—Quick flip of throw-out lever retracts dies instantly, after thread is cut.

Fast Chucking—RIGID Speed Chuck grips tight, forward or reverse... sets and releases fast by hand. Tools swing out of way for chucking of short lengths from front.

Always True Threads—Cam-action rear-centering device gives extra support for long pipe lengths... no wobble.

Full-Floating Cutter—Roll-type cutter with large easy-to-turn

handle has full-floating action for smooth cuts, even on out-of-round or bent pipe.

Smooth Reaming—Five heat-treated straight cutting flutes ream $\frac{1}{8}$ " to 2" pipe or conduit fast and smooth.

No Oil Waste—Self-contained oil system has vane-type pump that circulates oil when nozzle is positioned for threading.

Easy-to-Read Length Gauge—Sliding indicator gives accurate cut-off and thread lengths. Large lathe-type handle controls tool movement.

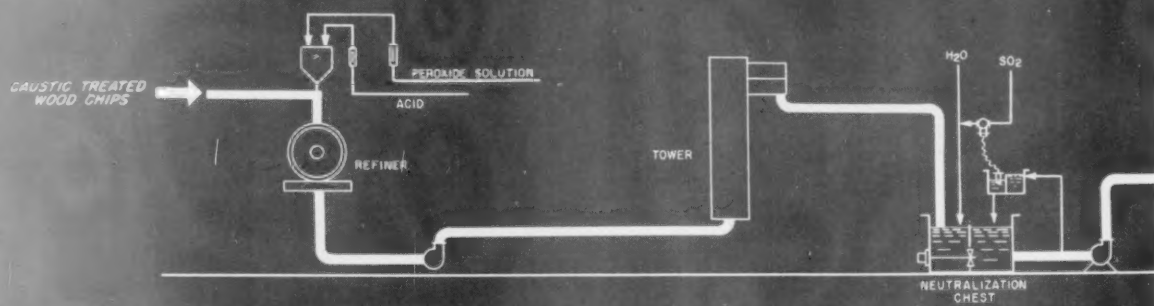
Plenty of Power—Fast, trouble-free universal-type $\frac{1}{2}$ h. p. motor, reversible at switch, easily threads up to 12" pipe with geared tools.

See and Try the Time-Saving RIGID 535 at Your Supply House!

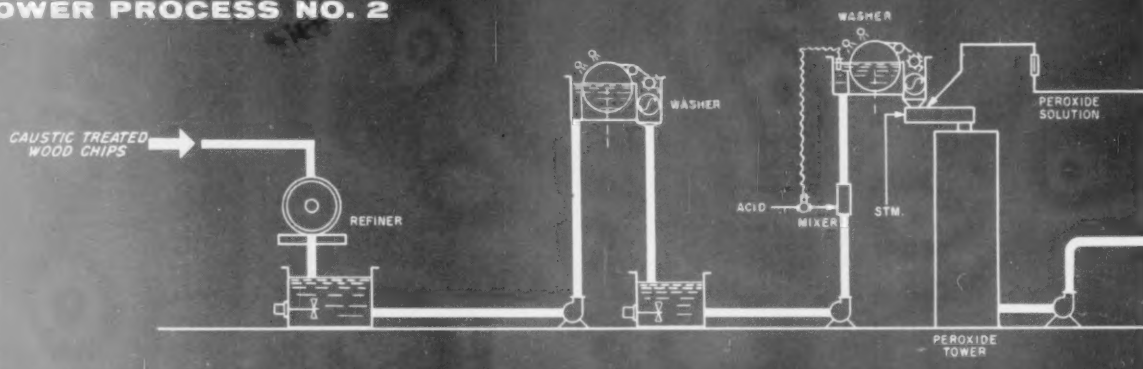
RIGID.

The Ridge Tool Company, Elyria, Ohio, U.S.A.

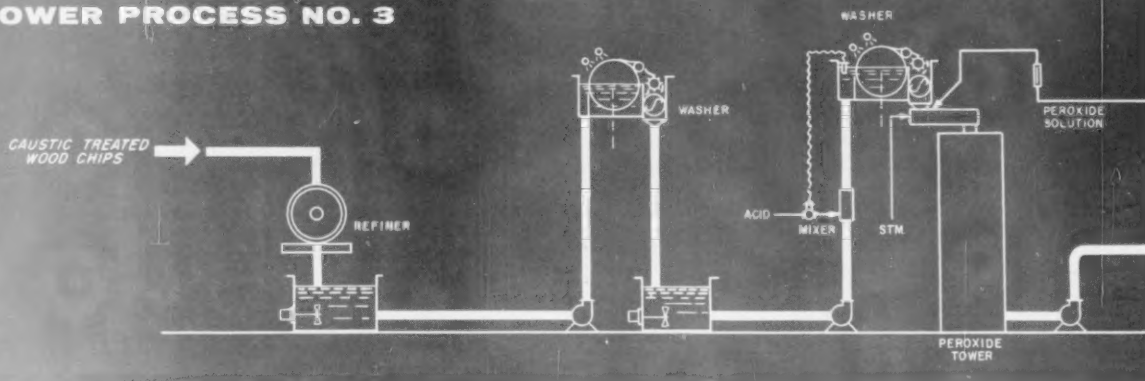
REFINER PROCESS NO. 1



TOWER PROCESS NO. 2

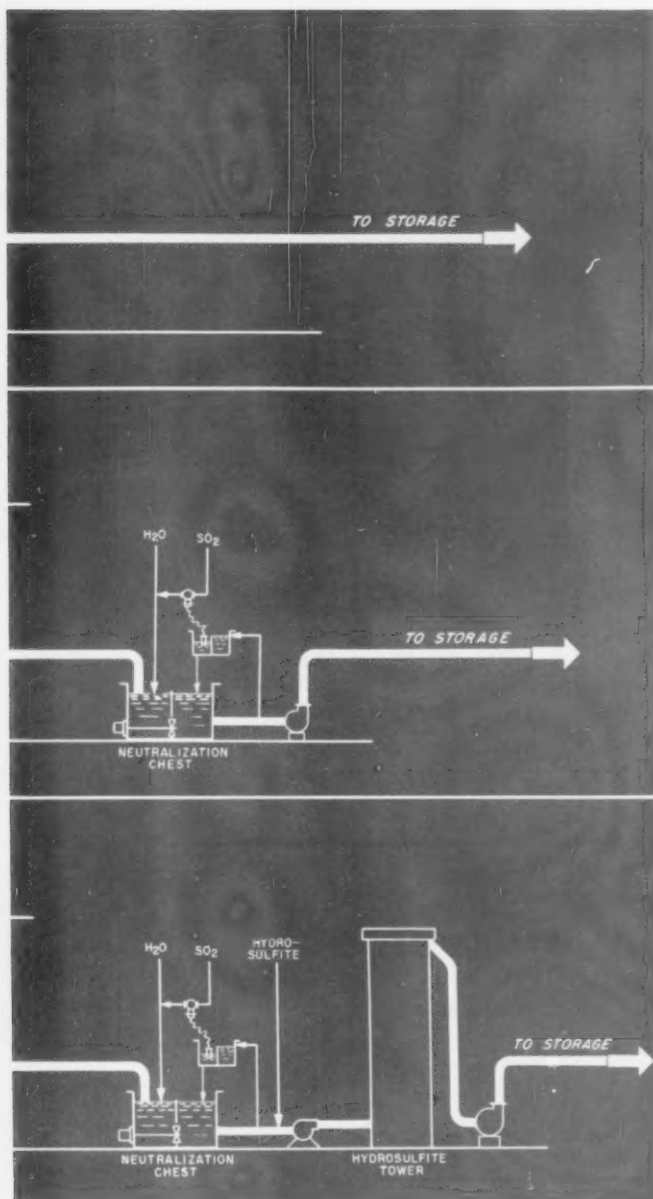


TOWER PROCESS NO. 3



**Which process is best for
experience can help you make the right
...and save you thousands of dollars in**

CALL ONE OF THESE MEN...LET HIM WORK WITH YOU IN MAKING THIS IMPORTANT DECISION:



Du Pont experience has helped many mills make the right choice between tower or refiner bleaching for cold caustic pulp based on brightness requirements. For example:

◀ **60 brightness.** In process No. 1 at left, caustic-treated wood chips enter refiner and are bleached with "Albone" hydrogen peroxide and acid*. The use of acid controls the alkalinity of the bleaching reaction and assures maximum response from the hydrogen peroxide. Sulfur dioxide (SO_2) then neutralizes the bleached pulp and stabilizes the brightness obtained in the refiner. *Du Pont Patent Pending.

◀ **65 to 75 brightness.** In process No. 2 at left, pulp is refined, washed to remove caustic solubles, acidified with sulfuric acid to remove acid solubles, washed, and bleached in a conventional peroxide tower to desired brightness in the 65 to 75 range.

◀ **70 to 80 brightness.** In process No. 3 at left, pulp goes through the same steps as in process No. 2. Then pulp is neutralized, and bleaching is completed in a hydrosulfite tower for maximum brightness in the 70 to 80 range.

Electrochemicals Department, Peroxygen Products Division
Wilmington 98, Delaware

ALBONE®
hydrogen peroxide



SOLOZONE®
sodium peroxide

BETTER THINGS FOR BETTER LIVING...THROUGH CHEMISTRY

bleaching cold caustic pulp? Du Pont choice between tower or refiner bleaching investment and chemical costs.

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Johnson

Streaker

All Smiles as Gavel Passes to New Chairman of So. California Group

... are L. R. (Bus) Johnson of the Robert Gair Paper Products div. of Continental Can Co. and Bill Streaker of Fibreboard Paper Products Corp. Mr. Johnson is newly elected chairman of the Paper Makers & Associates of Southern California, in which post he succeeds Mr. Streaker.

The new chairman will have in his 1960-61 "cabinet" Leon Christensen, U. S. Gypsum Co., vice chairman; Dan Snell, Continental-Gair, secretary-treas.; Al Mayes, Container Corp. of America, and Ernest Zans, Potlatch Forests Inc., executive committeemen, and John Elwood, Monsanto Chemical Co., program chairman.

Canada

L. G. Harris, recently appointed mgr., pulp sales, MacMillan, Bloedel & Powell River Ltd., Vancouver, B. C., has been making a first-hand study of the markets in Australia and New Zealand. He was formerly mgr., Harmac div., MB&PR.

W. C. Baggs, vice pres. and gen. mgr., Bathurst Paper Sales Ltd., has announced appointment of H. S. Smith as gen. sales mgr.; G. F. Allo as asst. gen. sales mgr., and P. H. Amys as district sales mgr. for Quebec. T. C. Chisholm

represents the company in Ontario.

Howard A. Simons, head of H. A. Simons Ltd., consulting engineers in Vancouver, B.C., was consulted by Georgei M. Orlov, head of the USSR pulp and paper mission, during the latter's tour of Canada. Mr. Orlov was interested in the kraft mills designed by Mr. Simons and discussed with him the possibility of doing the engineering for proposed mills in Russia. Similar discussions also took place between the Russians and Paul E. Cooper, exec. vice pres., Sandwell & Co., another Vancouver engineering firm.

Russians Visit Canadian Mills

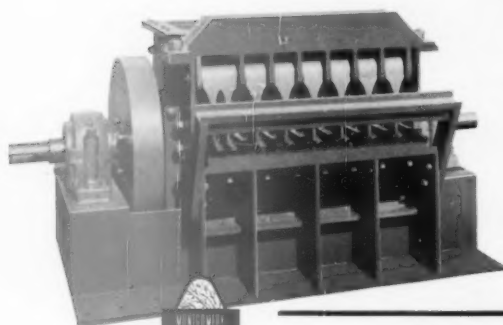


HOSTING RUSSIAN PULP and PAPER Group headed by Georgei M. Orlov (center in white coat) were several Crown Zellerbach Canada men shown here with their guests during visit to Elk Falls division at Duncan Bay, Vancouver Island. In the group with the Russians are Ed C.

Cooley and Wilf Hill, asst. resident managers; Peter Wilkie, kraft mill supt.; I. Christiansen, resident engineer; and M. N. Jorgenson, sawmill supt. George Williams of MacMillan, Bloedel & Powell River, Ltd., who acted as interpreter; Douglas Jones, exec. sec., CPPA, are in group.

JACKSONVILLE BLOW PIPE COMPANY announces the NEW K-C Model of the marvelous MONTGOMERY BLO-HOG (pat. pending)

ESPECIALLY DESIGNED FOR PAPER MILL SERVICE



- Minimum of down time and maintenance.
- Punch and die action.
- Tramp steel protection with replaceable shear pins on outside of machine.
- Grinds any kind of bark and billets, wet or dry.
- Rugged, welded steel construction.
- Interchangeable teeth.
- Replaceable anvil tips.
- Replaceable abrasion resistant steel wear plates.
- Hard surfaced teeth and anvils.
- Capacity from 31,000 lbs.-hr. with 75 hp. to 175,000 lbs.-hr. with 300 hp.
- Capacities allow for 250% surges.

OTHER MODELS ARE AVAILABLE FOR RE-CHIPPING AND BULL SCREEN REJECTS

All Montgomery products are guaranteed to do the job they are sold to do.

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QUALITY KNIVES FROM HEPPENSTALL

HEPPENSTALL COMPANY
PITTSBURGH 1, PENNSYLVANIA
PLANTS: Pittsburgh, Pa.
Bridgeport, Conn. • New Brighton, Pa.

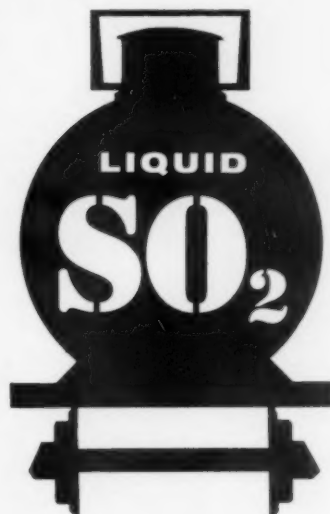


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NICETOWN, PHILADELPHIA 40, PA.



Die Blocks • Forgings • Back-Up Roll Sleeves • Rings
Industrial Knives • Materials Handling Equipment
Pressure Vessels • Hardened and Ground Steel Rolls
Vacuum and Consumable Electrode Melted steels

PULP & PAPER — August 1960



A product of highest purity particularly recommended for its properties as a reducing agent, preservative, antichlor and pH control.

This versatile chemical of many uses is efficient and economical, and is utilized in many manufacturing processes—Investigate the possibilities of Tennessee's Liquid Sulfur Dioxide in your processing. Let us discuss these possibilities with you.

**LIQUID
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We'll provide the record materials *free* to help you compare the grinding record, cutting ability and service life, of Disston Chipper Knives, against any knife made. Hardwoods, softwoods, catfaces, and frozen logs . . . run 'em all . . . then let the record speak for itself.

We and our customers already know the answer. Disston Knives are hardened in an exclusive salt bath process that eliminates internal stresses and eliminates cracking. The result is a constant hardness and uniform grain structure. When you sharpen, you get a perfect new edge with the least amount of grinding.

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PORTER SERVES INDUSTRY with steel, rubber and friction products, asbestos textiles, high voltage electrical equipment, electrical wire and cable, wiring systems, motors, fans, blowers, specialty alloys, paints, refractories, tools, forgings and pipe fittings, roll formings and stampings, wire rope and strand.



Enevoldsen

Saarikko

Selvig

Celgar Names Three Men to Key Jobs at Castlegar

Three industry experts whose experience began in Denmark, Finland and Norway, respectively, have received important appointments at the big bleached kraft mill being built at Castlegar, B. C., by Celgar Ltd.

They are: Jens C. Enevoldsen, chief project engineer; Aaro J. Saarikko, maintenance supt., and Gunnar Selvig, wood production supt.

M. Sc. graduate of the Univ. of Copenhagen, Mr. Enevoldsen came to Canada in 1951 on the staff of Rayonier Canada's pulp mills at Woodfibre and Port Alice, B. C. He joined Celgar a year ago as project engineer.

Mr. Saarikko graduated from the technical institute at Turku, Finland, and since coming to North America in 1952 has worked for Port Arthur Shipbuilding Co. Ltd., Irving Pulp & Paper Ltd., Kamyr Inc. and Eastern Corp. He joined Celgar in 1959.

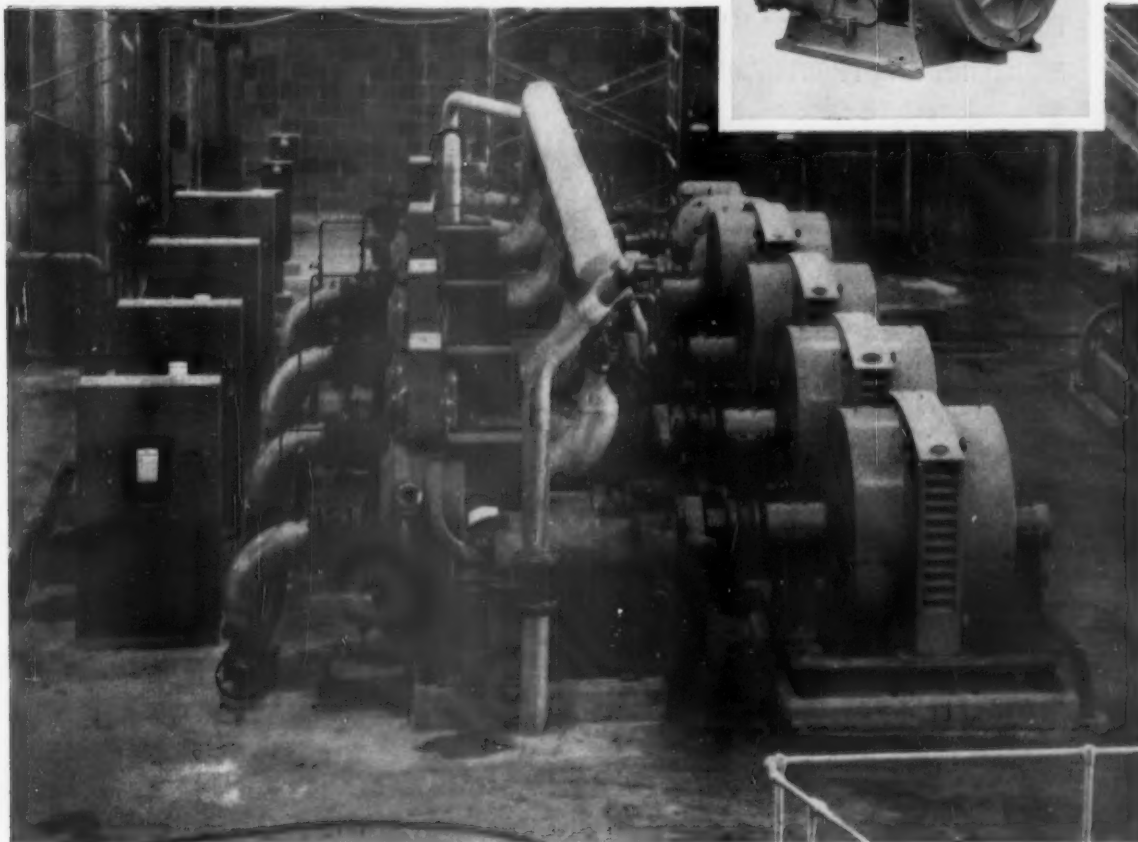
A forestry student in Oslo, Mr. Selvig was engaged in general construction after coming to Canada in 1939. He joined Columbia Cellulose Co. Ltd., the Prince Rupert affiliate of Celgar, in 1949, becoming mill woodroom and yard supervisor in 1951.

James A. Rainer is now representing Crown Zellerbach Canada Ltd. in eastern Canada as district sales representative, according to an announcement by Orval C. Cook, vice pres., sales, Vancouver.

Robert G. Pinkney has been made supt. of the wood-handling dept., the E. B. Eddy Co., Hull, Que. F. Thoutret has been appointed plant engineering supt. at the same operation and Robert Ingram electrical maintenance engineer. . . . F. W. Stocker, formerly special asst. to the mill mgr., pulp and board mills, the E. B. Eddy Co., has been named sulfite supt., and F. W. Wiggett has been named to the new position of pulping consultant.

E. W. Erickson has joined H. A. Simons (International) Ltd., Vancouver, B. C. consulting engineers. He will serve in an executive capacity. Mr. Erickson was associated with Crown Zellerbach Corp. more than 40 years until his recent retirement, when he stepped down as vice pres. in charge of manufacturing, engineering and construction.

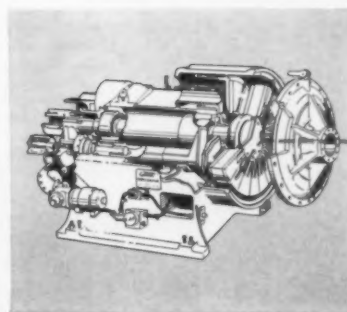
**Only 4.4 HP days per ton
Used by Jones Double-D's**



... at International's Pine Bluff Mill

Production schedules at International's Pine Bluff Mill call for over 500 tons of quality foodboard stock per day — from one 300" Beloit machine. Helping to make this tonnage possible is an efficient battery of four Jones Double-D's operating in parallel for primary refining. Each unit is driven by a 600 HP motor. Working continuously since the mill was put in operation, each Double-D has been processing approximately 140 tons per day . . . for an outstanding performance rating of only 4.4 HP days per ton to accomplish almost two thirds of the total primary refining. Important, too, is the fact that Jones Double-D's save on floor space — since each does the work of two ordinary single disc machines.

The experience at International is typical of Jones Double-D's efficiency in many mills. Why not get high production at low HP days per ton — with less floor space in your mills, too? For full details write to E. D. Jones Corporation, Pittsfield, Massachusetts, for Bulletin EDJ-1083.



With Jones Double-D's, stock under pressure passes between two single-faced stationary discs and one (center) double-faced rotating disc. This results in precision controlled two stage refining.



Canadian Associates:
The Alexander Fleck Ltd.
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Jones

PULP MILL EQUIPMENT AND
STOCK PREPARATION MACHINERY

A PRACTICAL, STEP-BY-STEP PROGRAM FOR INCREASING PAPER MILL EFFICIENCY AND PRODUCT QUALITY

Lurking behind every ton of paper produced today are the problems of rising costs which threaten profits. The paper industry sees an increase in production of over a million tons per year for the next 10 years. If production objectives are to meet market objectives, greater mechanization heads the action list . . . to raise efficiency, emphasize quality control, insure a better profit picture.

Westinghouse Progressive Automation is a step-by-step program to help you achieve a greater measure of automatic production. Progressive Automation is thoroughly practical. Applied to an individual mill, it is an individual plan. Thus, you can reach your goals economically, without over- or under-automating.

Today, Westinghouse is ready to help you plan and execute the next step in a program for automatic production. For many, this will be data logging . . . automatic recording and tape storage, at any preset interval, of information from hundreds of points in the mill. Fast. Errorless. A centralized data center observes functions throughout the plant, so you can make accurate and timely decisions on quality control.

What lies beyond? The Westinghouse computer control system with the ability to handle dozens of varia-

bles in a comprehensive program. On-line computers receive data from sensing devices, make computations from process equations, control the process.

Progressive Automation has already proved itself with many manufacturers by stepping up production, improving quality, reducing off-grade losses and human error. One of the many rewards realized from automated equipment is more—and better control of—knowledge, both for present paper products and processes and for future product development.

Westinghouse Progressive Automation is flexible and therefore your capital investment is at a minimum. Controls and systems, appropriate to the stage of automation presently achieved in your mill, can be added as needed.

Westinghouse can help you work out a long-range plan of progressive automation . . . and is prepared to recommend, furnish, install and maintain all equipment to fulfill that plan. Today, and for the first time, there is one source for controls, computer systems and all other basic electrical equipment for paper mills. Transformers, switchgear, motors, gearing, drives. Westinghouse is ready to offer you automation, step by step, economically . . . and will assume complete responsibility for system coordination. Call your Westinghouse representative for complete information.

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POWER-UP FOR PROFIT . . . ELECTRICALLY**

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WESTINGHOUSE PROGRESSIVE

AUTOMATION



New Westinghouse Pulsetter® paper machine control...accurate and flexible equipment for present needs and future automatic operation. Digital techniques permit overall machine speed to be maintained at $\pm 0.01\%$ of set speed. Close-to-perfection accuracies mean only a 5" variation in 2000 feet! Numerical readout of section speeds and draws is provided.

*Trade-Mark

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MATION

Strictly Personal

Ralph M. Shaw, exec. vice. pres., MacMillan, Bloedel & Powell River Ltd., is now chairman of Powell River-Alberni Sales Ltd., the new corporation that will direct all sales of newsprint for the company's mills. R. G. McHugh, formerly president of Powell River Sales Co., now integrated with the new sales company, continues as president of PRAS, with Robert L. Bonaparte mgr. and Harry Chambers comptroller. Traffic Mgr. Kenneth F. Barton continues in charge of all newsprint traffic. Gary Bowell, vice pres., pulp and paper sales for MacMillan, Bloedel & Powell River, has been added to the directorate of PRAS. Dewar Cooke, formerly with newsprint, kraft paper and board sales for MacMillan & Bloedel prior to the merger with Powell River, has been named asst. to the president, PRAS. He joined the H. R. MacMillan Export Co. in 1951 and was with the Harmac kraft div. for five years, devoting much of his time to planning MacMillan & Bloedel's entry into the newsprint field. William Lavery, who was also with M&B, has joined PRAS and will be active in sales coordinating and servicing with Stuart Doon.

Anson Brooks, who formerly headed Powell River Sales Corp., the U.S. subsidiary of Powell River, in charge of marketing in the U.S., continues as president of the newly organized Powell River-Alberni Sales Corp., which has offices in Seattle, San Francisco and Pasadena. Associated with Mr. Brooks at Seattle is Peter Powell, who has been in the organization for two years. Donald Jeffries continues in charge of the San Francisco office, and now associated with him as a vice pres. is D. A. Dayton, who until recently was gen. mgr., Alberni Paper Co. Inc. in San Francisco, and was formerly associated with Fernstrom Pacific Corp. Another new member of the San Francisco staff is G. R. Berkeley, formerly with California Ink Co. and Minnesota Mining & Mfg. Co.

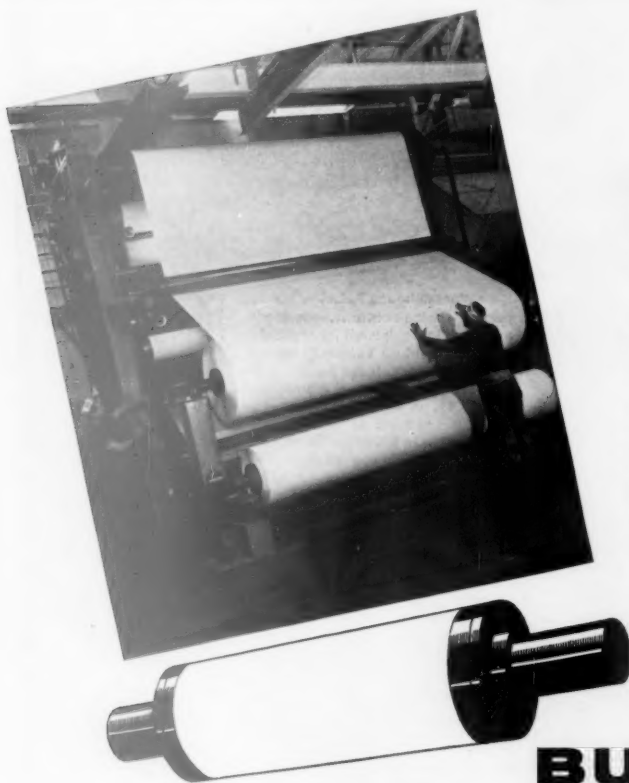
Fred Ward, who was with Newsprint Service Co. before joining Powell River Sales Corp. when it was first set up, is the senior member of the organization as a vice pres. of PRAS. His association with Powell River goes back to the early 1920s, when he was with Virginia Dock & Trading Co., an early Powell River Co. subsidiary in Seattle. For the past seven



**Preston Read Made Mgr.,
Crown Z's Richmond Div.**

He succeeds Wilfred C. Gigler at the British Columbia converting plant. Mr. Gigler is now production mgr. at the new CZ operation in St. Louis, Mo. A graduate of McGill Univ., Montreal, Mr. Read was with Consolidated Paper Corp. Ltd. prior to joining Crown Zellerbach Canada Ltd. at the Ocean Falls div. as asst. resident mgr. He was transferred to Richmond in 1959 in a similar capacity.

years his associate at the Pasadena office has been Terry Holler, who represented Powell River sales Corp. in Chicago before moving to the Coast. Newest addition to the Pasadena organization is Henrik Vought, Swedish-born former vice pres. of Alberni Paper Co., now a vice pres. of PRAS.—Charles L. Shaw.



GREAT NAMES in the Paper Industry: The Mead Corporation

A Butterworth bleached roll with special filling is used in this supercalender stack at The Mead Corporation, Chillicothe, Ohio.

Butterworth Rolls, used by the leaders in the Paper Industry, are made to specification and checked for hardness, smoothness, and density before delivery. You can see the difference in finer finishes, extra hours of service without turning down or refilling.

Furnished new or refilled for every calendering need. And you get Butterworth Rolls at competitive prices. Quotations on request.

H. W. BUTTERWORTH & SONS COMPANY
Bethayres, Pa. Division of Van Norman Industries, Inc.

BUTTERWORTH

More than 60 years of Roll-Making Experience



**FOR EFFICIENCY
IN BEATER APPLICATIONS...**

This pigment's exceptionally uniform particles disperse quickly and easily...do the best job possible in beater applications. There are no lazy particles in Unitane O-110. Ask your Cyanamid Pigments representative for further details.

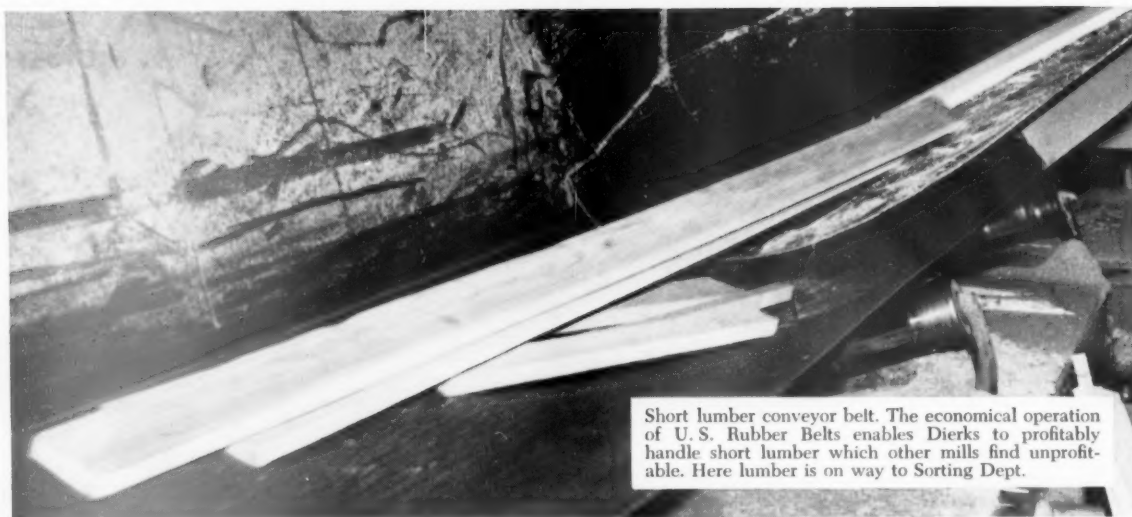


CYANAMID

AMERICAN CYANAMID COMPANY, Pigments Division
30 Rockefeller Plaza, New York 20, N. Y.
Branch Offices and Warehouses in Principal Cities



CONVEYOR BELTS



Short lumber conveyor belt. The economical operation of U. S. Rubber Belts enables Dierks to profitably handle short lumber which other mills find unprofitable. Here lumber is on way to Sorting Dept.

"Our maintenance costs have been cut in half, because U. S. Paracril-covered belts never seem to wear out,"

says Dierks Forests, Inc.

"No matter how rough we treat our U. S. Rubber conveyor belts, our belt maintenance costs have been cut in half," says Mr. R. C. Beaver of Dierks Forests, Inc., plant engineer at the mill in Mountain Pine, Arkansas.

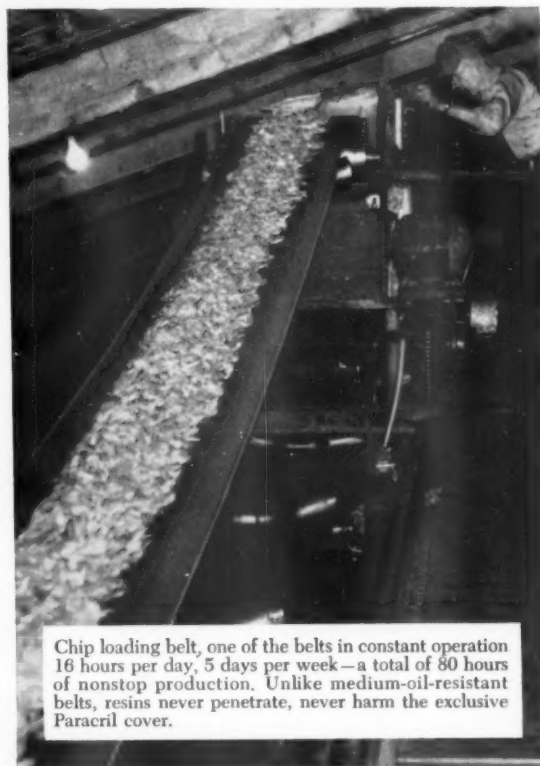
The combined six mills of Dierks make it the largest producer of southern pine lumber in the nation. "Three of our mills use Paracril®-covered 'U. S.' Belts exclusively," continues Mr. Beaver. "These mills produce 147 million board feet of lumber per year. That's a hefty job for belts.

But these Paracril covers have unmatched resistance to tearing and splitting. They are completely oil- and resin-proof."

Paracril-covered belts are made only by U. S. Rubber.

So-called medium-oil-resistant belts cannot match them, for service or long-run economy. For true efficiency, insist on Paracril-covered belts by U. S. Rubber.

See your "U. S." Distributor.



Chip loading belt, one of the belts in constant operation 16 hours per day, 5 days per week—a total of 80 hours of nonstop production. Unlike medium-oil-resistant belts, resins never penetrate, never harm the exclusive Paracril cover.



Mechanical Goods Division

United States Rubber

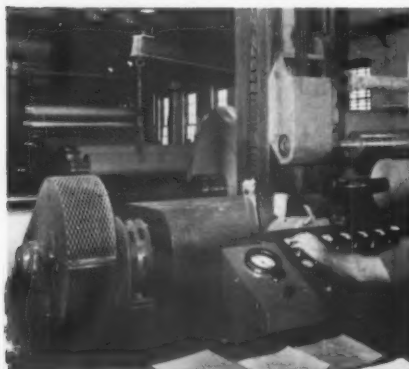
WORLD'S LARGEST MANUFACTURER OF INDUSTRIAL RUBBER PRODUCTS

Rockefeller Center, New York 20, N.Y.

In Canada: Dominion Rubber Company, Ltd.



Here's another profit-making installation
by MANCHESTER MACHINE COMPANY



Smooth, tight rolls every time—low maintenance—trouble-free operation—these are the things that add to paper mill profits. Pictured above is a Manchester winder in operation at a well-known Michigan mill. This was a *repeat order* placed less than six months after installation of their first Manchester winder.

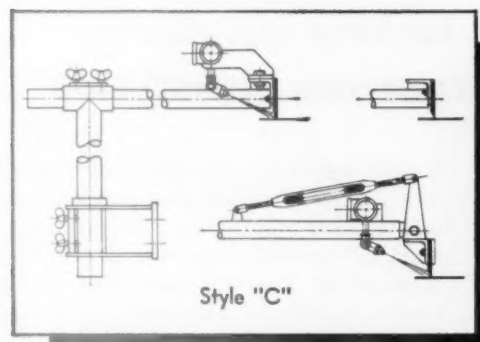
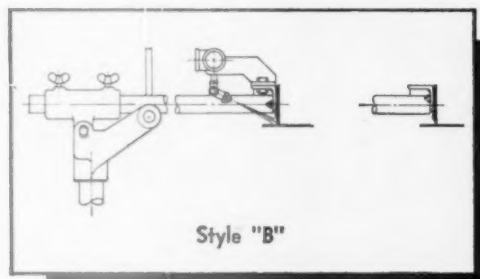
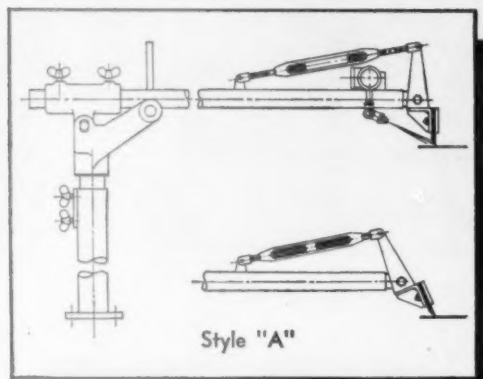
Designed to accommodate 84-inch diameter rolls, this rugged all-steel machine room winder is turning in profit-making performance day after day.

See what Manchester can do for you before you order another winder. **THE MANCHESTER MACHINE COMPANY, MIDDLETOWN, OHIO.**



Manchester Builds Profits for Papermakers

SANDY HILL Ruler Edge Deckles



Simply and completely adjustable
to need.

Lip may be of rubber or phenolic
resin as shown.

Write for complete details.



THE
SANDY HILL
IRON AND BRASS WORKS
HUDSON FALLS, N. Y.

NEWS OF SUPPLIERS TO THE INDUSTRY

Beloit Eastern Corp. Executives Named



Hammill

Markowski

Patterson

William S. Wood, president of the Downingtown, Pa. firm, announces the following appointments: **B. L. Hammill**, mgr. of special products and a 23-year veteran with Beloit Iron Works, is sales mgr. **W. D. Markowski**, with the parent firm five years as staff and sales engineer, becomes mgr. of winder sales, and **H. R. Patterson**, staff engineer, is named chief engineer.

Harold D. Partridge Named by Hooker

... Chemical Corp. to newly-created post of mgr., paper industry development. Said **Charles Y. Cain**, Eastern Chemical div. sales mgr.: "... appointment is part of a program to help implement pulp and paper's efforts to increase process efficiencies, improve product quality standards and economize on raw materials". Mr. Partridge comes to Hooker from Brown Co., Berlin, N. H., where he was asst. mgr. of pulp research and development.



Lockport Felt Expands Sales Coverage



Dempsey

Korn

Sargent

White

Addition of four sales representatives is announced by the Newfane, N. Y., and Starkville, Miss. company. **Richard C. Dempsey**, previously with Whiting Paper Co. and A. E. Staley Mfg. Co., becomes New York and Connecticut representative. **Donald L. Korn**, in industrial sales for General Mills Inc., will cover Minnesota, Wisconsin and part of Illinois. **Paul E. Sargent**, formerly with McCluskey Wire Co., will contact mills in Maine, Vermont, New Hampshire, Massachusetts and Rhode Island. **Thomas E. White** joins Lockport from United Board & Carton Co. and will cover Ohio, Indiana and southern Illinois. Another Lockport veteran, **C. L. (Bud) Miller**, will continue in the Michigan territory.

MEETING DATES

September 1-3

New York-Canadian PIMA (Fall Meeting)
Saranac Inn, Upper Saranac Lake, N. Y.

September 6-9

Technical Section CPPA (Summer Meeting)
Banff Springs Hotel, Banff, Alta.

September 18-21

National Paper Trade Assn. (Semi-Annual Fall Meeting)
Conrad Hilton, Chicago

September 22-23

Northwestern PIMA (Fall Meeting)
Northland Hotel, Green Bay, Wis.

September 27-29

11th TAPPI Testing Conference
Pantlind Hotel, Grand Rapids, Mich.

September 30-October 1

Pennsylvania-New Jersey-Delaware PIMA (Fall Meeting)
Pocono Manor Hotel, Pocono Manor, Pa.

October 6-7

National Assn. of Corrosion Engineers (Western Region Conference)
Sheraton-Palace Hotel, San Francisco, Cal.

October 6-8

National Assn. of Corrosion Engineers (Southeastern Region Conference)
Dinkler-Plaza Hotel, Atlanta, Ga.

October 7-8

Connecticut Valley PIMA-New England TAPPI (Joint Fall Meeting)
The Shine Inn, Chicopee, Mass.

October 10-13

10th Corrugated Containers Conference
Royal York Hotel, Toronto, Ont.

News of the Suppliers . . .

Bulkley Dunton Pulp Co. Inc. has opened a West Coast sales and distribution office in San Francisco, Calif. Manager is Robert M. VanSant, with broad experience in woodpulp and secondary fibers. He will also be responsible for sales of Fourdrinier wires produced by **United Wire Works Ltd.**, Edinburgh, Scot., and Horsehead titanium dioxide produced by **New Jersey Zinc Co.** . . . **Hooker Chemical Corp.** will build a multimillion-dollar plant at South Shore in northern Kentucky for production of synthetic phenol. Completion is anticipated by the end of 1961. . . .

Stevens Mill Supply Co., Port Hueneme, Cal., is named engineering and service representative for **Manchester Machine Co.**, Middletown, Ohio. States included in the agreement are California, Arizona, Nevada and Utah. . . . **Wolverine Equipment Co.**, manufacturer of high-velocity dryers, was to occupy new headquarters in Cambridge, Mass., about June 20. . . . Work has begun on a \$200,000 extension to the Vancouver, B. C. head office building of **Sandwell & Co. Ltd.**, consulting engineers. The firm also maintains offices in Portland, Ore., and Stockholm, Sweden.

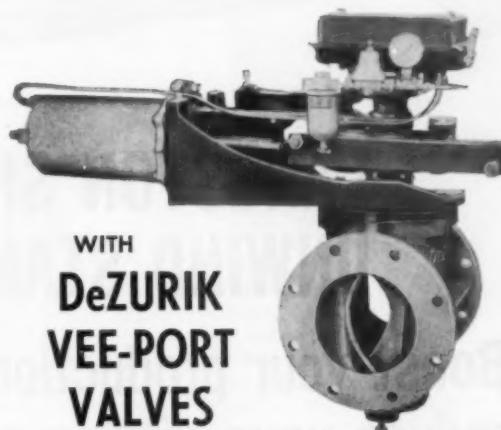
A new IBM Cardatype procedure has "resulted in reduced production scheduling time and centralization of clerical facilities" at the Albany, N.Y. plant of **Albany Felt Co.** . . . **J. O. Ross Engineering div.**, Midland-Ross Corp., has installed special testing equipment at its New Brunswick, N.J. laboratory. Included: a Waldron multi-coater capable of all coating methods, an unwind unit, rewind unit, an RD straight-pass (or multi-pass) type high-velocity dryer and an SP sectionalized type high-velocity dryer over a standard steam-heated dryer roll. . . .



THERE'S A DIFFERENCE



and it can be yours



WITH DeZURIK VEE-PORT VALVES

The difference begins with the diamond-shaped orifice; stock cannot plug the orifice to interfere with precise control. The straight-thru flow design permits higher capacity. The actuator responds instantly to control signals, reacting with extreme sensitivity. And control characteristics are easily changed by changing a cam in the positioner.

These—and other—features make the big difference . . . the difference that can be yours with DeZurik Vee Port Valves!

Write for more information
on DeZurik Vee Port Valves.

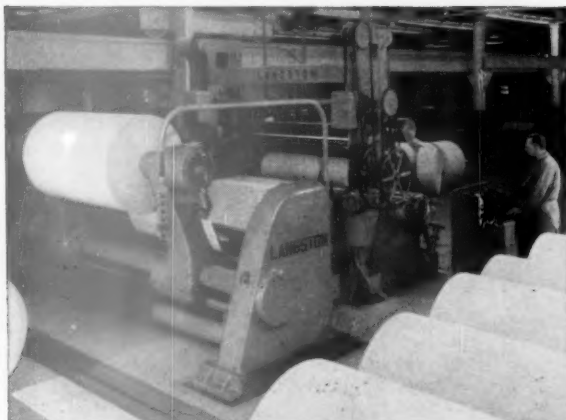


Ready for the roll. Notice the absence of a shaft. Roll is moved in between lifting arms which are then lowered and closed under pressure and then elevated to unwinding position.



LANGSTON SHAFTLESS UNWIND STAND

**Boost your production . . .
reduce your slitting and rewinding costs**



Easy, fast, completely safe. One man does everything. Operating push-button controls, he closes lifting arms, elevates roll, sets brakes.

One man can load the heaviest roll. No heavy shaft to handle. No cone tightening. No couplings to engage. No crane lifting. Just pushbuttons. This is the Langston standard shaftless unwind stand for rewinding and converting applications.

You not only save time, you also get better unwinding. Roll can be positioned laterally by push-button control—even when the machine is running. It's held firmly under pressure for complete safety throughout the unwind. Several braking arrangements can be provided to handle a wide range of grades and conditions. Available extras provide for handling very narrow rolls; for constant tensioning; for automatic braking of idler rolls; for automatic web alignment and side register control; for web oscillation; and for local or remote control.

This new Langston shaftless unwind stand can be used with any make of slitter. Available for maximum roll widths from 36 to 140 in. and diameters from 14 to 84 in. For complete information, write Samuel M. Langston Co., Camden 4, N. J.

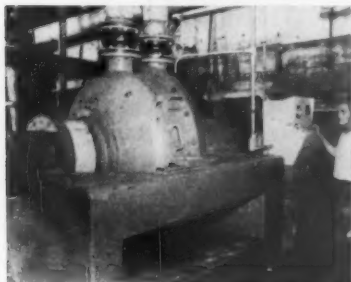


LANGSTON



Pump-Through Refiner

... is Simplified Model



Applications: For stock preparation. **Advantages:** No. 441-44", newest in the Bauer 440 series, is said to be an improved and simplified version of earlier models. Innovations include increased horsepower and reduced weight. Control of degree of refining is said to be fast, easy and accurate through an electro-hydraulic servo mechanism that adjusts position of the plates.

Specifications: Daily pulp capacity is 300 tons, horsepower is available up to 1,000. Stainless steel is used for all parts that come into contact with pulp. Base is a one-piece steel weldment. As in previous models, rotating disc is located between the bearings in a manner to eliminate misalignment, even in case of shaft deflection. Rotating disc is pulled, not pushed, against stationary disc.

Supplier: Bauer Bros. Co., 1706 Sheridan Ave., Springfield, Ohio.

Crawler Tractor

... Mobility Big Factor



Applications: For handling wood chips and shavings in outside storage.

Advantages: Stability, versatility and maneuverability are said to be big factors in operation of the T-340 unit. At one Oregon plant, it push loads wood chips and shavings into the hopper and stockpiles material to several times its own height.

Specifications: The 45-hp unit has a

¾-cu. yd. Drott 4-in-1 skid shovel. It has five speeds forward, one in reverse with a range from 1.5 to 5.9 mph. When ordered with Torque Amplifier Drive, tractor has 10 speeds forward—two in each gear—and two in reverse. Speed in any gear is cut one-third by simply pulling the TA lever. Pull power can be increased up to 45%. Unit can be ordered with either 38- or 48-in. gauge track, each track having four rollers and 66 in. track on the ground. Ground clearance is 12 in., overall height 52 in.

Supplier: International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill.

Indicating Bellows Meter

... 15 Differential Ranges



Applications: For flow and liquid level meter applications that do not require recording or transmission (indicating steam, air, gas and water volume of industrial processes and side streams or cuts from fractionating towers).

Advantages: Meter is equipped with stainless steel pointer pinion to provide proper meshing and correct indication under all temperature and moisture conditions and a nylon-faced gear sector to assure long life in measuring pulsating flow. Calibration is made without removing dial; and a screwdriver-actuated span adjustment is accessible without removing the dial.

Specifications: Unit has a 6-in. indicating dial. Fifteen differential ranges from 0-20 in. to 0-400 in. water are available and can be changed in the field. Calibrated accuracy is $\pm 1\%$ full scale for ranges of 0-50 in. water or above and $\pm 1\%$ full scale for range below 0-50 in. water. Standard scale calibrations are 0-100 linear or 0-10 and 0-100 square root. Other graduations available on request. Other features include: hysteresis $\pm 3\%$; ambient temperature limits -40°F to $+175^\circ\text{F}$; compensations for ambient temperatures; linear damping adjustment, and stainless

steel bellows.

Supplier: Minneapolis-Honeywell Regulator Co. (Brown Instruments Div.), Philadelphia 44, Pa., Tel: DAvenport 9-8300.

Indicating Transmitter

... Specific Elements



Applications: For pressure, flow, temperature, liquid level, differential pressure and dew point.

Advantages: Known as the Model 45 Series, the line features measuring elements specifically designed for each major process variable. Has high ambient temperature stability, with less than 0.5% error for ambient temperature changes as great as 50°F , regardless of the variable measured. Over-all calibrated accuracy of the transmitter, including measurement and output signal, is guaranteed to be within $\pm 0.5\%$. Said to be easy to adjust and maintain. High visibility is provided by 6-in. scale and fluorescent pointer.

Specifications: Transmitter available with measuring elements in the following ranges: Pressure—0-10 in. water to 0-80,000 psi; temperature— 450°F to 1000°F (-270°C to 5000°C); flow (differential pressure)—0-1 to 0-400 in. water; liquid level—open vessels, 0-10 in. water minimum, and closed vessels, 0-20 in. water minimum; dew point -50°F to 185°F . Output signal: 3-15 psi (3-27 psi optional). Operates on a 20 psi air supply. Instrument components are enclosed in a weatherproof steel case that has corrosion-resistant vinyl coating, gasketed door. Over-all case dimensions: 9½ in. \times 11½ in. \times 5 in. **Supplier:** The Foxboro Co., 38 Neponset Ave., Foxboro, Mass., Tel: KIngwood 3-5311.

PAPER CONDITIONING

THE MODERN EFFICIENT
ECONOMICAL WAY

**BUILT TO OPERATE AT
ANY MACHINE SPEED**

SYSTEMS ALSO BUILT FOR
APPLYING SIZING MATERIALS,
STARCHES, WAX EMULSIONS,
PLASTICISERS AND OTHER
SURFACE FINISHING
SOLUTIONS

**BUILT FOR MANUFACTURING
OR CONVERTING PROCESSES**

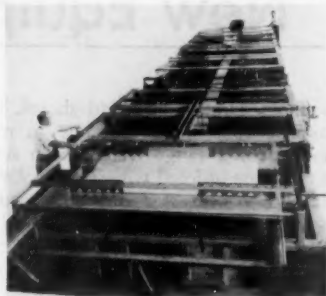
VAPO SYSTEMS

128-32 W. Home Ave.
Villa Park, Ill.



Bottomer Machine

... for S.O.S. Bags



Applications: For forming S. O. S. bottoms at each end of the tube simultaneously, one open end with self-sealing adhesive and one closed end.

Advantages: The horizontal double S. O. S. bottomer shown in the picture was built for mattress-size tubes. It receives the tube from the tuber and feeds it through creasing, gusset opening, bottom forming, pasting, bottom closing one end and final delivery to the conveyor at the rate of 900 bags per hour.

Supplier: Smith & Winchester Mfg. Co., South Windham, Conn., Tel: (Willimantic) HARRISON 3-5043.

Adjustable Speed Drives

... in Large Horsepowers

Applications: For paper machine line shaft drives, calenders, pumps, etc.

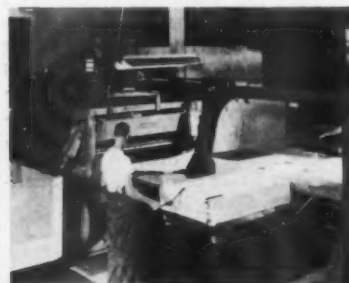
Advantages: The Magnetic Drives feature simplified design with few moving parts and provide versatile adjustable speed performance over an automatically-regulated 20:1 range. Unit is based on a liquid-cooled magnetic coupling design that features stationary field construction, bearings that can be re-lubricated without disassembly and a "unique" cooling system that permits a planned flow of air through the drive at all times and is said to eliminate possibility of bearing condensation and drive flooding. "Water drag" is eliminated and closer, more uniform speed regulation obtained.

Specifications: In ratings from 75 to 4,000 hp, drives operate from ac power and are offered as a complete drive package, including drive unit with water controls, controller enclosure and operator's station.

Supplier: Louis Allis Co. (Bulletin #3650), Dept. P, 427 E. Stewart St., Milwaukee 1, Wis., Tel: HUMBOLDT 1-6000.

Unstacker, Trimmer Loader

... Production Up 30-40%



Applications: For finishing room use in paper and board mills.

Advantages: At the push of a button, the automatic unstacker and trimmer loader separates and unstacks a trimmer lift from the skid and delivers it with a single continuous stroke to the trimmer table, ready to cut. Says the manufacturer, the lift is floated off the skid without drag, peel or damage to the paper.

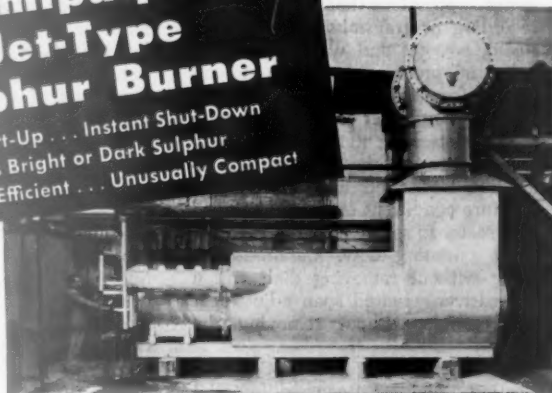
Specifications: Trimmer production, it is claimed, can be increased from 30 to 40% by one trimmer operator. Thus, saving of direct labor plus higher daily production are effected. Unit will handle practically any size or weight of trimmer lift.

Supplier: Charles R. Stevens Inc., 501 W. Sophia St., Maumee, Ohio.

Chemipulp-KC Jet-Type Sulphur Burner

- Fast Start-Up ... Instant Shut-Down
- Handles Bright or Dark Sulphur
- Highly Efficient ... Unusually Compact

30-ton installation,
Rayonier Canada
Limited, Port Alice,
B. C.



In the Chemipulp-KC Burner, molten sulphur is sprayed into the burner as a fine mist; heated secondary air is then introduced in several stages, resulting in clean, efficient burning. The burner quickly reaches its operating temperature of about 2400°F., minimizing production of SO₃. Operates efficiently at all SO₂ concentrations between 12%

and 18½%. At 2100°F., bitumen in dark sulphur is completely burned.

Available in a range of sizes up to 50 tons of sulphur per day and each size will produce SO₂ gas efficiently through a wide operating range. Compact design and flexibility of layout permit installation in limited space.

Write for Bulletin 100

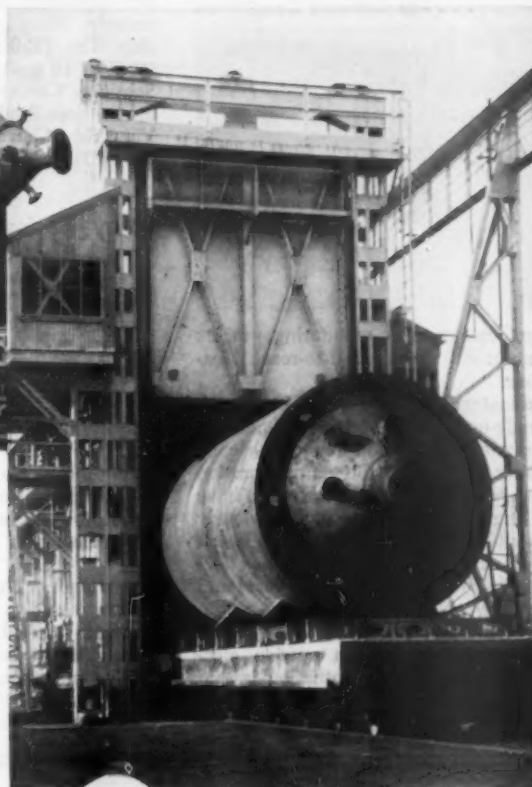
Chemipulp Process Inc. Woolworth Building, Watertown, N.Y.

Associated with Chemipulp Process Ltd., 253 Ontario St., Kingston, Ontario

Pacific Coast: A. H. Lundberg, Inc., P. O. Box 186, Mercer Island, Wash.

Lundberg-Ahlen Equipment Ltd., 779 W. Broadway, Vancouver 10, B. C.

FROM DESIGN — to Fabrication and Erection



CB&I offers complete 4 point DIGESTER SERVICE

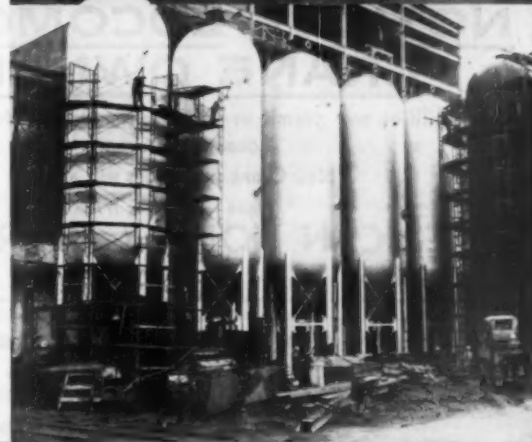
Profit from pulp takes more than a mill and men to run it. The same will be true of the next digester you buy.

That's why CB&I offers a complete and expertly coordinated 4 point digester service. Our facilities to (1) design, (2) engineer, (3) fabricate and (4) erect are duplicated by few, if any other, sources.

Complete stress-relieving facilities are maintained at each CB&I plant. And CB&I crews are fully equipped and experienced for field stress-relieving. Partial or full X-ray and magnetic particle examination of structures in shop or field is available to meet all code or customer requirements.

Hortonclad®, CB&I's exclusive, vacuum bonding process can provide digester cladding of integral, continuous bond having exceptional strength and corrosion resistance.

These are but a few of the reasons why CB&I digesters and pulp plant equipment are selected for the most rigid requirements. And, why CB&I services offer an exceptionally high degree of quality control between shop and field. A bulletin on *CB&I Pulp and Paper Structures* and our *Field Services* bulletin will provide more details. Write our nearest office for your copies.



PP-25

Chicago Bridge & Iron Company

Atlanta • Birmingham • Boston • Chicago • Cleveland • Detroit • Houston • Kansas City (Mo.)
New Orleans • New York • Philadelphia • Pittsburgh • Salt Lake City
San Francisco • Seattle • South Pasadena • Tulsa
Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY,
GREENVILLE, PA. and at NEW CASTLE, DELAWARE.
In Canada: HORTON STEEL WORKS LTD., TORONTO, ONTARIO

Top left: 40-ft. long digester designed for working pressure of 150 lbs. per sq. in. leaves our Birmingham plant where it was X-rayed and stress-relieved.

Middle: Digester leaves CB&I stress-relieving furnace at our Birmingham plant. Furnace can handle vessels up to 13-ft. diam. by 79-ft. long in one heat.

Below: 60-ft. high digesters erected, stress-relieved and seam welds X-rayed in the field by CB&I at Weyerhaeuser's 400-ton sulphite pulp mill at Cosmopolis, Washington.

NEW EQUIPMENT

Closed-Circuit TV Camera

... For Extreme Conditions



Applications: For monitoring process conditions, etc. in hard-to-reach locations.

Advantages: The self-contained, single-unit transistorized camera is designed to function at top efficiency under extreme conditions of vibration and noise. The TE-9-A is said to have a degree of mobility not previously possible in closed-circuit television units. It is claimed to operate effectively at extremely low light level and achieve a high picture quality—a 650-line horizontal resolution. Rugged housing protects from outside electrical interference. Ventilation is said to be unnecessary.

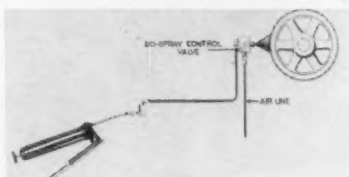
Specifications: Cylindrical in design,

unit is 11½ in. long, has a dia. of 5½ in. and weighs 9 lbs. It will use virtually any standard 16-mm lens and is equipped with a remote turret for mounting four lenses simultaneously. Many accessories are available. The TE-9-A operates on power input of 18 watts.

Supplier: General Electric Co., Communications Products Dept., Mountain View Rd., Lynchburg, Va., Tel: Victor 6-7311.

Spray Lubrication

... for Industrial Gearing



Applications: For use where frequency of lubricating single heavy-duty gears is no problem, but inaccessibility presents danger to maintenance personnel.

Advantages: This "versatile" spray system is said to offer an inexpensive, efficient method of lubrication and dependability because of simple operating principle.

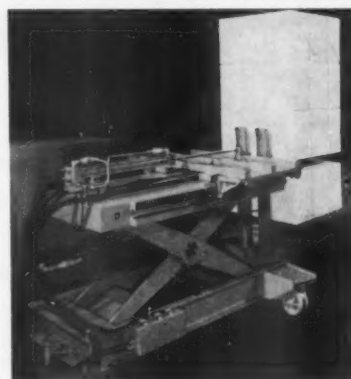
Specifications: With a hand grease gun, lubricant is sprayed as long as

pumping continues. Lubricant pressure forces down a spring-loaded piston, opening porting to the Farval spray control valve. This allows air and lubricant, each under separate pressure, to be forced through the spray nozzle. When lubricant flow ceases, piston returns to original position, closing ports. Air supply is then shut off, limiting compressed air consumption to the amount needed for each delivery of oil or grease.

Supplier: Eaton Mfg. Co. (Farval Div.), 3300 E. 80th St., Cleveland 4, Ohio, Tel: VULcan 3-4560.

Pulp-Bale Stacker

... Handles Various Sizes



Applications: For stacking in storage or delivering to conveyor and/or fork truck pick up.

Advantages: Unit is fully automatic, hydraulically-actuated and will hold, stack and discharge both uniform and varying size pulp bales. It stacks any pre-set number of bales within its capacity. New machine will also stack untied bales and swing to deposit them on pallets for wrapping and strapping into "jumbo" packages.

Supplier: Lamb-Grays Harbor Co., Inc., P.O. Box 359, Hoquiam, Wash., Tel: Hoquiam 1000.

NOTICE — LOCOMOTIVE CRANE OWNERS

Our facilities now permit us to offer complete factory rebuilding of Locomotive Cranes.

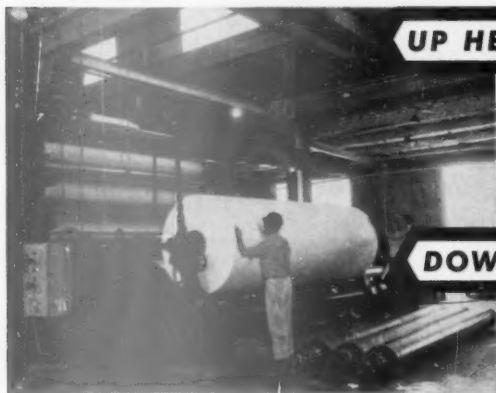
New Crane warranties will apply.

Phone — Wire or Write

AMERICAN HOIST & DERRICK CO.

ST. PAUL 7, MINN.

CAPITAL 2-0541



UP HERE,

there's A EUCLID CRANE

Placing
Cores on
the Paper
Winder

DOWN HERE

This essential paper mill operation is made easier and accomplished quicker with the aid of a precision control Euclid Crane.

Directly behind the large sheet roll of paper are three more cores ready for placement on the winder.

Paper mill cranes are a specialty of ours. We can build them to meet your general or specific handling needs. For stand-by or continuous service. Any capacity, any control system.

That's why an ever increasing number of paper mills are specifying EUCLIDS.

for details write

THE EUCLID CRANE & HOIST CO.
1363 CHARDON ROAD • CLEVELAND 17, OHIO

Dryden= and Quality Service

Papermakers know that Dryden is synonymous with quality. But Dryden is also known for complete and efficient service.

Dryden maintains boxcar inventories of sulphate pulps—ready to go at a moment's notice...Cars are constantly on the move all over the country and, in an emergency, can be rapidly diverted...Delivery can be made to any destination in the East in a maximum of ten days, and much more quickly in the Midwest—due to Dryden's strategic location on the CPR east-west trunk line.

Dryden also offers a special service to those who use more than one grade of Dryden pulp: mixed cars with two or more grades help keep your inventories at a minimum.

And, of course, technical information and service are always available whenever the need arises. Order a trial shipment of Dryden Sulphate Pulp—and get the extra bonus of quality and service.

DRYDEN PAPER COMPANY, LIMITED

DRYDEN, ONTARIO, CANADA

SOLD BY: Anglo Paper Products, Ltd.

2055 Peel Street, Montreal 2, Quebec

SALES REPRESENTATIVE IN THE UNITED STATES:

Northeastern Paper Sales, Inc.

400 Madison Avenue, New York 17, N.Y.



■ SHORT TURNING

Short wheelbase, rounded rear corners and 180° turning angle of ELPAR's "Cargo-Scout" assure maximum maneuverability in narrow aisles, crowded docks and other confined spaces!

■ HIGH SPEED

ELPAR's high speed lift and travel plus fast acceleration assure more work in less time.

■ SAFETY

The stand-up operator's position on the ELPAR "Cargo-Scout" means he can get off fast in emergencies. Duplicate hand and foot controls make it easy to drive this truck backward when bulky loads limit forward vision.

4 models—2, 3, 4, & 5,000 lbs.

Write For Descriptive Catalog—Specify capacity required.



**The
ELWELL-
PARKER
Electric Company**

4205 St. Clair Avenue, Cleveland 3, Ohio

Coosa River's 10 Eventful Years

COME TO COOSA PINES



Kellett

Norton

Mahler

Wahlstedt

Wakeman

In a legendary central Alabama valley where 500 years ago a city of 50,000 is said to have existed peacefully under tribal government, Coosa River Newsprint Co., has joined water and forests in annual production of 250,000 tons of newsprint. The \$72,000,000 facility recently marked its 10th anniversary.

Honored guests were about 300 newspaper publishers and pulp and paper leaders. Speaking at the birthday banquet, James G. Stahlman, publisher of the "Nashville Banner," noted that the Coosa Pines plant was conceived by the southern Newspaper Publishers Assn. "Coosa River," he said, "has been a great asset to its region; it has been a profitable venture for those who put cash on the barrel head, and for Kimberly-Clark, in its management contract."

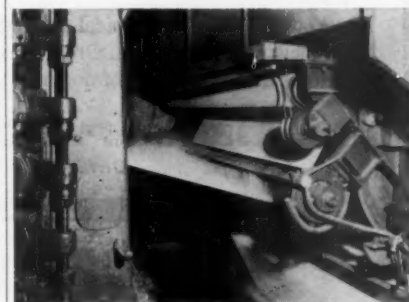
Where only just 10 short years ago the muddy bank of the Coosa River was just that—a muddy bank—one of the biggest and fastest newsprint machines in the world a 343 inch Beloit Fourdrinier was center of attraction

at the open house. The company owns or controls 458,000 acres of woodlands, employs 1,050 workers.

(Above:) Enjoying the welcome of Coosa River Newsprint at the birthday celebration were (l to r) William R. Kellett, president, Kimberly-Clark Corp.; Edward L. Norton, board vice chairman, Coosa River; Ernst Mahler, former exec. vice pres., Kimberly-Clark; A. C. Wahlstedt, first vice pres. and gen. mgr., Kansas City Star Co., and Arthur G. Wakeman, president of Coosa River and vice pres. of K-C.

Suppliers Make News . . .

Crane Co., Chicago, has acquired Pipe Fabricators Inc., East Chicago, Ind., and Canadian Pittsburgh Piping Ltd., Hamilton, Ont. All domestic and Canadian pipe and valve fabrication will eventually be concentrated at these locations. . . . Carrier Conveyor Corp. and its subsidiary, General Industries, both of Louisville, Ky., have been merged into Chain Belt Co., Milwaukee.



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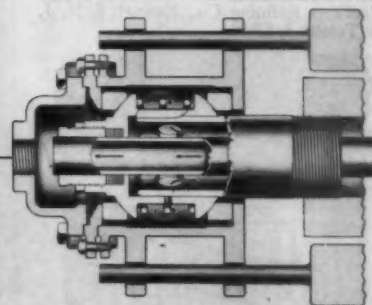
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| | | |
|--|---|--|
| Allied Chemical Corp. National Aniline Div. 41 Solvay Process Div. 117 | Fisher Governor Co. 27 | Perkins-Goodwin Co. back cover |
| Allis-Chalmers Mfg. Co. 29 | Gaspesia Sulphite Co. Ltd. 56 | H. K. Porter Co., Inc. 126 |
| American Bitumuls & Asphalt Co. 114 | General Dyestuff Co. 61-62 | William Powell Co. 37 |
| American Cyanamid Co., Industrial Chemicals Div. 17-18 | General Electric Co. 93 | Puget Sound Pulp & Timber Co. 16 |
| American Cyanamid Co., Pigments Div. 131 | Gilbert & Nash Div., Appleton Machine Co. 116 | Rader Pneumatics, Inc. 107 |
| American Hoist & Derrick Co. 105, 140 | Clidden Co. 95 | Reliance Electric & Engineering Co. 118 |
| Anglo Paper Products, Ltd. 56, 141 | B. F. Goodrich Industrial Products Co. 4 | Rice Barton Corp. 1 |
| Appleton Wire Works, Inc. 109 | Gottesman & Co. 6 | Ridge Tool Co. 121 |
| | | J. O. Ross Engineering Co. 28 |
| Babcock & Wilcox Co. 46-47 | Hadley Falls Trust Co. 60 | Sandy Hill Iron & Brass Works 134 |
| Becco Chemical Div. Food Ma- chinery & Chemical Corp. 10 | Hanchett Mfg. Co. 143 | Scapa Dryers, Inc. 12 |
| Beloit Iron Works 19-22, 127 | Heppenstall Co. 125 | Seaboard Air Line Railroad 50 |
| Beloit Eastern Corp. 115 | | Signode Steel Strapping Co. 30 |
| Bird Machine Co. 2 | Improved Machinery Inc. 26 | Ray Smythe Co. 143 |
| Black-Clawson Co. 43-44 | International Nickel Co., Inc. 34 | Solvay Process Div. 117 |
| John W. Bolton & Sons, Inc. inside front cover | | Southworth Machine Co. inside back cover |
| H. W. Butterworth & Sons Co. 130 | Jacksonville Blow Pipe Co. 124 | Standard Oil Co. (Indiana) 53 |
| | Jamesbury Corp. 39 | Stauffer Chemical Co. 108 |
| Cameron Machine Co. 25 | Johnson Corp. 143 | Stebbins Engineering & Mfg. Co. 24 |
| Celgar Ltd. 51 | E. D. Jones Corp. 127 | Sutorbilt Corp. 58 |
| Central Soya Co., Inc. 23 | | Swenson Evaporator Div. 31 |
| Chain Belt Co. 57, 59 | Knox Woolen Co. 147 | |
| Chemipulp Process Inc. 138 | | Tennessee Corp. 125 |
| Chicago Bridge & Iron Co. 139 | Samuel M. Langston Co. 136 | Torrington Co. 96 |
| Chicago & Northwestern Railway 97 | Link-Belt Co. 36 | Towmotor Corp. 49 |
| Classified Advertising 144-145 | Lodding Engineering Corp. 110 | |
| Columbia Pulp Sales Ltd. 51 | Lubriplate Div., Fiske Bros. Refining Co. 144 | U.S. Rubber Co. 132 |
| Combustion Engineering Inc. 42 | | U.S. Steel Corp. 54-55 |
| Corn Products Co. 113 | Manchester Machine Co. 133 | |
| Crane Co. 32-33 | Minneapolis-Honeywell 52 | Valley Iron Works 63 |
| | Mt. Vernon Mills, Inc. 35 | R. T. Vanderbilt Co., Inc. 64 |
| DeZurik Corp. 135 | | Vapo Systems, Inc. 138 |
| Disston Div. 126 | Nash Engineering Co. 45 | |
| Doven Division, Appleton Machine Co. 119 | National Aniline Div. 41 | Warren Pumps, Inc. 120 |
| Dryden Paper Co., Ltd. 141 | Naylor Pipe Co. 38 | West End Chemical Co. 108 |
| J. H. Dupasquier 142 | Nopco Chemical Co. 48 | Westinghouse Electric Corp. 14-15, 128-129 |
| | Northeastern Paper Sales, Inc. 56, 141 | Weyerhaeuser Co. 143 |
| E. I. du Pont de Nemours & Co. 122-123 | | Whiting Corp. 31 |
| Ebasco Services Inc. 94 | Oilgear Co. 8 | Wolverine Equipment Co. 112 |
| Elwell-Parker Electric Co. 142 | Owen Bucket Co. 143 | |
| Emerson Mfg. Co. inside front cover | | Yarnall-Waring Co. 40 |
| Euclid Crane & Hoist Co. 140 | | |

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**International Industry
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With each passing year pulp and paper becomes more and more a truly global industry. Joining the traditional manufacturers, small nations that were once "have-not" countries have established production facilities—some based on pulpwood, some on reeds, straws and other native fibrous materials.

As the industry grows in the four corners of the earth, PULP & PAPER's annual World Review Number is steadily strengthening its position as the recognized authority on the international scene. Not by facts, figures or statistics alone. But, more especially, by editorial comment on the place of the industry in each country.

Men with expert knowledge of pulp and paper in most of the larger countries contribute by-lined articles outlining the highlights of the previous year and taking a knowing look into future prospects. Industry spokesmen in the smaller nations and/or the governments themselves furnish the data on which the World Review Number's extensive statistical material is based. Editor Albert W. Wilson contributed many thousands of words and generally oversaw the entire operation.

The editorial staff of PULP & PAPER is of course extremely proud to see a fine product become better and better year after year. But, perhaps more important is our pride in the work that goes into its production. This year, Northeastern Editor Maurice R. Castagne, Southern Editor William F. Diehl and Midwestern Editor Don W. Zeigler spent many hours and days discovering sources for hard-to-find statistics, coordinating the material that poured in from all over the world, preparing text and illustrative material and generally putting the big book to bed.

Naturally, with each year's issue we feel that improvement over past years is not only a goal. It is an absolute necessity. The 1960 World Review Number is no exception. It is certainly the very best study of pulp and paper throughout the world and will be even better in the years to come.

We urge everyone with an interest in industry activities and prospects throughout the world (and that should mean everyone) to look to this year's World Review for the most complete survey available anywhere.

Prevention of Boiler Plant Accidents

The pulp and paper industry deserves much credit for quickly acting to find prevention methods for the kind of dissolving tank explosions which have recently been a problem—certainly by no means a frequent occurrence. But even the rare accidents of this kind must be dealt with.

Concerning the explosion problem resulting from smelt-water reactions, there is very limited information available.

We can, however, make one broad observation. In all of the kraft-soda type recovery furnace explosions, water has been a contributing factor. In other words, the introduction of water into the smelt pool of the recovery furnace can create an explosive hazard. On the other hand, there have been many units which have experienced

furnace or boiler tube failures which have continued to operate and were taken out of service and did not experience a violent explosion.

The Technical Association of the Pulp and Paper Industry is currently studying this problem. This will be a joint effort of the pulp and paper mill operations as well as equipment suppliers, and as such, is assured of real progress.

At the Alkaline Pulping Conference of TAPPI at Portland, Oregon on August 22-24 a paper is to be presented entitled, "The Interaction of Water and Smelt." This treatise will indicate what happens when water and smelt of various compositions are brought into contact with each other. More good work in this direction can be expected.

What Is Pollution?

Lack of understanding concerning pollution presents serious impediment to developing sound water management programs. So states Vinton W. Bacon, executive secretary, Northwest Pulp & Paper Assn., Tacoma, Washington. Too few people realize that water has capacity to receive and assimilate wastes and still return to its original condition without damage.

Speaking to participants at Tri-State Joint Labor Council of Paper Makers & Workers, he suggested the following ways in which individuals can help: (1) Know the facts. If your mill is right, don't let anyone make them the scapegoat for problems arising elsewhere. (2) If people question you about your mill's waste disposal problems for which you don't know the answers, consult your union leaders and your company's management and find out the answers. (3) When public hearings on the matter are being held, concern yourself with them. They involve the welfare of the industry and its employees. (4) Insist that waste dilution and dispersion be recognized as the legitimate and beneficial water use it is. (5) Keep in mind this is not singly a management problem. What affects the industry's welfare affects its customers, employees, shareholders, suppliers and many other persons.

United Action

With formation of the Career Guidance Committee of The Paper Industry, this industry enters a more mature phase in its history. The move is significant because it unites the major industry associations to work together for a common cause, career guidance. The move will certainly create a stronger and better image of the paper industry to at least one group: college students. We congratulate the Career Guidance Committee and wish it much success in this and other fields.

What Will Oyster Growers Make Of This?

Woodmill and log-boom employees at a West Coast pulp mill recently harvested Pacific oysters from pulp logs. The shellfish, two to three years old, were found growing on logs of several log rafts arriving at this Puget Sound mill from British Columbia.

HOW SOUTHWORTH AIR-FLOAT TABLES*



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